



DVD PLAYER

DVG-4000N

SERVICE MANUAL



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1. Precautions

1-1 Safety Precautions

1) Before returning an instrument to the customer, always make a safety check of the entire instrument, including, but not limited to, the following items:

(1) Be sure that no built-in protective devices are defective or have been defeated during servicing.

(1) Protective shields are provided to protect both the technician and the customer. Correctly replace all missing protective shields, including any remove for servicing convenience.

(2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including, but not limited to, nonmetallic control knobs, insulating fish papers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning.

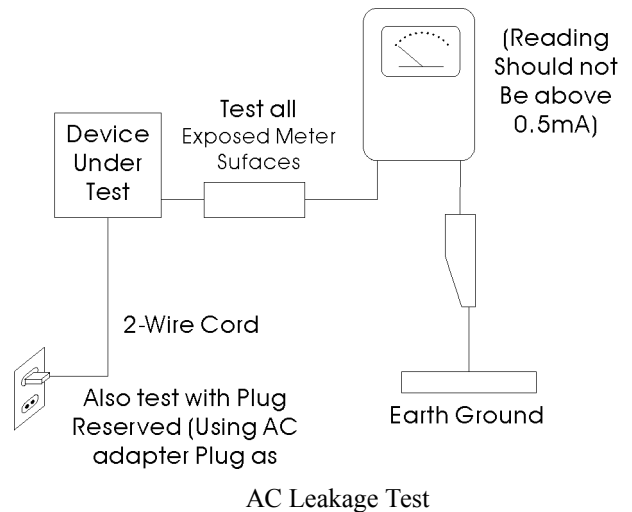
(2) Be sure that there are no cabinet opening through which adults or children might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, excessively wide cabinet ventilation slots, and an improperly fitted and/or incorrectly secured cabinet back cover.

(3) Leakage Current Hot Check-With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards institute (ANSI) C101.1 Leakage.

Current for Appliances and underwriters Laboratories (UL) 1270 (40.7). With the instrument's AC switch first in the ON position and then in the OFF position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinets, screwheads, metallic overlays, control shafts, etc.), especially and exposed metal parts that offer an electrical return path to the chassis.

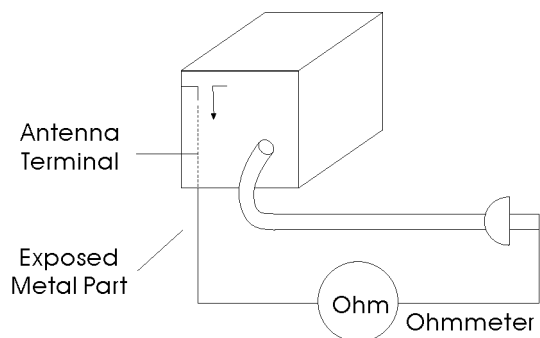
Any current measured must not exceed 0.5mA.

Reverse the instrument power cord plug in the outlet and repeat the test.



Any measurements not within the limits specified herein indicate a potential shock hazard that must be eliminated before returning the instrument to the customer.

(4) Insulation Resistance Test Cold Check-(1) Unplug the power supply cord and connect a jumper wire between the two prongs of the plug. (2) Turn on the power switch of the instrument. (3) Measure the resistance with an ohmmeter between the jumpered AC plug and all exposed metallic cabinet parts on the instrument, such as screwheads, antenna, control shafts, handle brackets, etc. When an exposed metallic part has a return path to the chassis, the reading should be between 1 and 5.2 megohm. When there is no return path to the chassis, the reading must be infinite. If the reading is not within the limits specified, there is the possibility of a shock hazard, and the instrument must be re-pared and rechecked before it is returned to the customer.



Insulation Resistance Test

2) Read and comply with all caution and safety related

notes non or inside the cabinet, or on the chassis.

- 3) Design Alteration Warning-Do not alter or add to the mechanical or electrical design of this instrument. Design alterations and additions, including but not limited to, circuit modifications and the addition of items such as auxiliary audio output connections, might alter the safety characteristics of this instrument and create a hazard to the user. Any design alterations or additions will make you, the service, responsible for personal injury or property damage resulting therefrom.
- 4) Observe original lead dress. Take extra care to assure correct lead dress in the following areas:
 - (1) near sharp edges, (2) near thermally hot parts (be sure that leads and components do not touch thermally hot parts), (3) the AC supply, (4) high voltage, and (5) antenna wiring. Always inspect in all areas for pinched, out-of-place, or frayed wiring. Do not change spacing between a component and the printed-circuit board. Check the AC power cord for damage.



1-2 Servicing Precautions

CAUTION: Before servicing Instruments covered by this service manual and its supplements, read and follow the Safety Precautions section of this manual.

Note: If unforeseen circumstance create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions. Remember; Safety First



1-2-1 General Servicing Precautions

- (1) a. Always unplug the instrument's AC power cord from the AC power source before (1) removing or reinstalling any component, circuit board, module or any other instrument assembly. (2) disconnecting any instrument electrical plug or other electrical connection. (3) connecting a test substitute in parallel with an electrolytic capacitor in the instrument.
- b. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service manual might be equipped.
- c. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state

- 5) Components, parts, and/or wiring that appear to have overheated or that are otherwise damaged should be replaced with components, parts and/or wiring that meet original specifications. Additionally determine the cause of overheating and/or damage and, if necessary, take corrective action to remove and potential safety hazard.
- 6) Product Safety Notice-Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by shading, an () or a () on schematics and parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

device heat sinks are correctly installed.

- d. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.
- Note:** Refer to the Safety Precautions section ground lead last.
- (2) The service precautions are indicated or printed on the cabinet, chassis or components. When servicing, follow the printed or indicated service precautions and service materials.
- (3) The components used in the unit have a specified flame resistance and dielectric strength.

When replacing components, use components which have the same ratings, by () or by () in the circuit diagram are important for safety or for the characteristics of the unit. Always replace them with the exact replacement components.
- (4) An insulation tube or tape is sometimes used and some components are raised above the printed wiring board for safety. The internal wiring is sometimes clamped to prevent contact with heating components. Install such elements as they were.
- (5) After servicing, always check that the removed screws,

components, and wiring have been installed correctly and that the portion around the serviced part has not been damaged and so on. Further, check the insulation between the blades of the attachment plug and accessible conductive parts.

1-2-2 Insulation Checking Procedure

Disconnect the attachment plug from the AC outlet and

turn the power ON. Connect the insulation resistance meter (500V) to the blades of the attachment plug. The insulation resistance between each blade of the attachment plug and accessible conductive parts (see note) should be more than 1 Megohm.

Note: Accessible conductive parts include metal panels, input terminals, earphone jacks, etc.

1-3 ESD Precautions

Electrostatically Sensitive Devices (ESD)

Some semiconductor (solid static electricity) devices can be damaged easily by static electricity.

Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques of component damage caused by static electricity.

- (1) immediately before handling any semiconductor components or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
- (2) after removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
- (3) Use only a grounded-tip soldering iron to solder or unsolder ESD device.
- (4) Use only an anti-static solder removal devices. Some

solder removal devices not classified as “anti-static” can generate electrical charges sufficient to damage ESD devices.

- (5) Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESD devices.
- (6) Do not remove a replacement ESD device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).
- (7) Immediately before removing the protective materials from the leads of a replacement ES device touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

- (8) Minimize bodily motions when handling unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

2. Reference Information

2-1 Component Descriptions

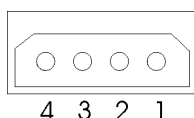
2-1-1 DVD ATAPI Loader

D.C. Power Supply

A 4-pin shrouded, keyed male connector is used to provide the D.C.Power.

The pin assignment is described below.

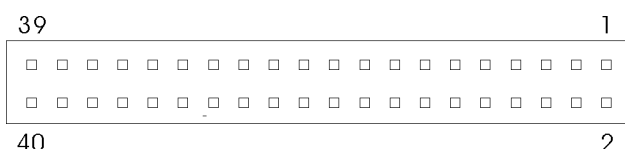
PIN	DC VOLTS
1	+12V
2	GND
3	GND
4	+5V



Interface Connector

A 39-pin male, unshielded, shrouded, keyed connector are applied.

Please refer to Section 7-2-3 regarding its pin definition.



Electrical Characteristics

1. Power

1-1. Voltage

+5V DC with $\pm 5\%$ tolerance. Less than 100mVp-p Ripple Voltage

+12V DC with $\pm 10\%$ tolerance, less than 150mVp-p Ripple Voltage

1-2. Current

Continuous Reading

+5V DC 500mA (Average)

+12V DC 300mA (Average)

Seeking & Spin up

+5V DC 0.8A (Maximum)

+12V DC 1.5A (Maximum)

2. Signal Summary

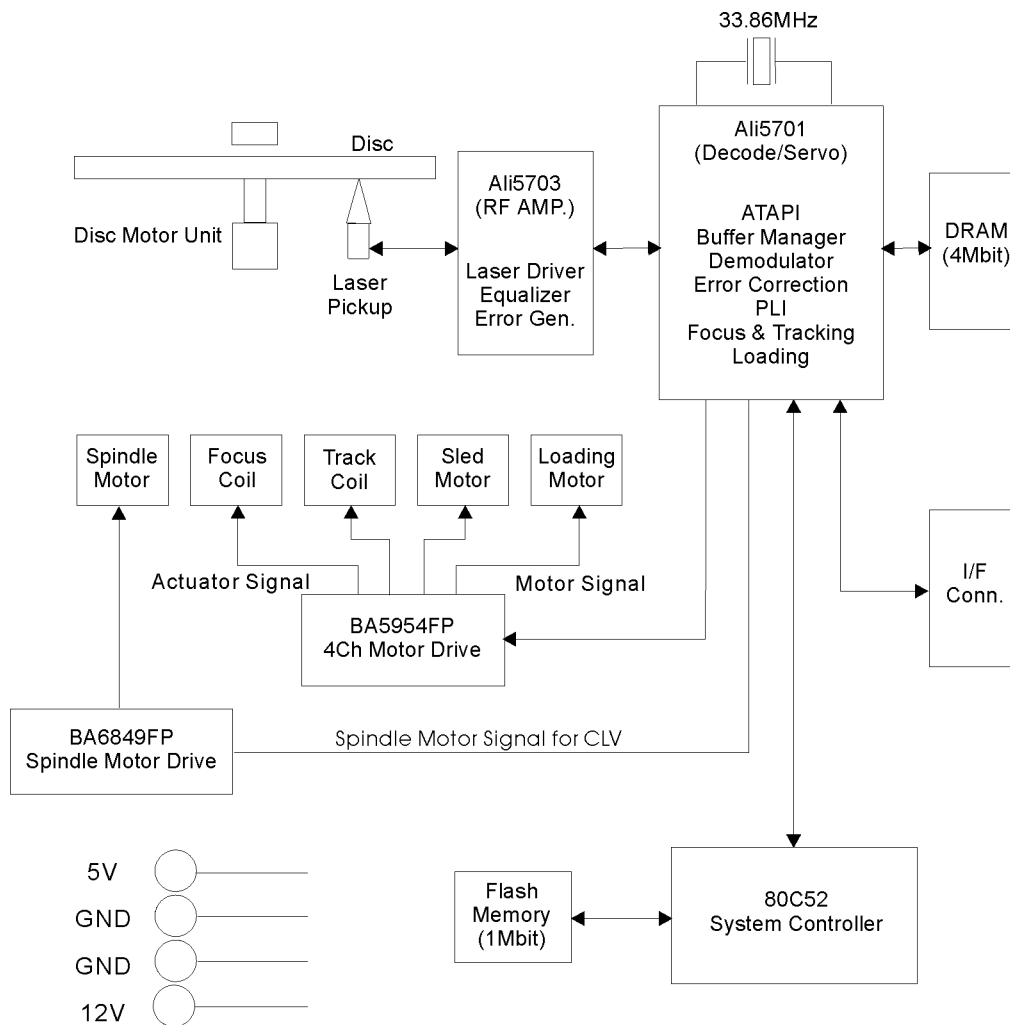
The physical interface consists of single ended TTL compatible receivers.

3. Connector Pin Definition

I/F Signals	I/O Pin #	I/F Signals	I/O Pin #
Reset	1	DMARQ	21
GND	2	GND	22
DD7	3	DIOW	23
DD8	4	GND	24
DD6	5	DIOR	25
DD9	6	GND	26
DD5	7	IORDY	27
DD10	8	CSEL	28
DD4	9	DMACK	29
DD11	10	GND	30
DD3	11	INTRQ	31

I/F Signals	I/O Pin #	I/F Signals	I/O Pin #
DD12	12	IOCS16	32
DD2	13	DA1	33
DD13	14	PDIAG	34
DD1	15	DA0	35
DD14	16	DA1	36
DD0	17	CS1FS	37
DD15	18	CS3FS	38
GND	19	DASP	39
NC	20	GND	40

4. Block Diagram



2-1-2 NTSC/PAL Digital Video Encoder (AV3168)

FEATURES

- Fully CCIR 624 performance compliance NTSC and PAL (B,D,G,H,I,M and N) video encoder.
- Composite, S-video, Component Y/Cb/Cr (Sony, Matsushita, and SMPTE) or RGB output.
- Triple 10-bit digital to analog converter.
- Accepts 27 Mhz multiplexed 8-bit digital video inputs.
- Master or Slave 4-Field NTSC or 8-Field PAL video timing generation.
- CCIR 656 EAV SYNC extraction.
- Automatic NTSC or PAL timing detection in slave mode operation.
- Automatic or User Programmable Chroma Filter Selection.
- Macrovision Anti-Tapping Rev 7.01 support in AV3168 Only.
- Closed Caption Support.

- Contrast and Brightness control.

Clock Generation

- 3 outputs for 27 MHz video clock, 16.934, 18.432 and 36.864 Mhz audio clock, and 40.5, 54.0, 67.5 and 81.0 MHz general purpose clocks.
- Requires a single 27 Mhz crystal.

General

- CVBS and S-video DAC power down controls.
- I²C compatible serial control bus.
- Single +5 volt power supply.

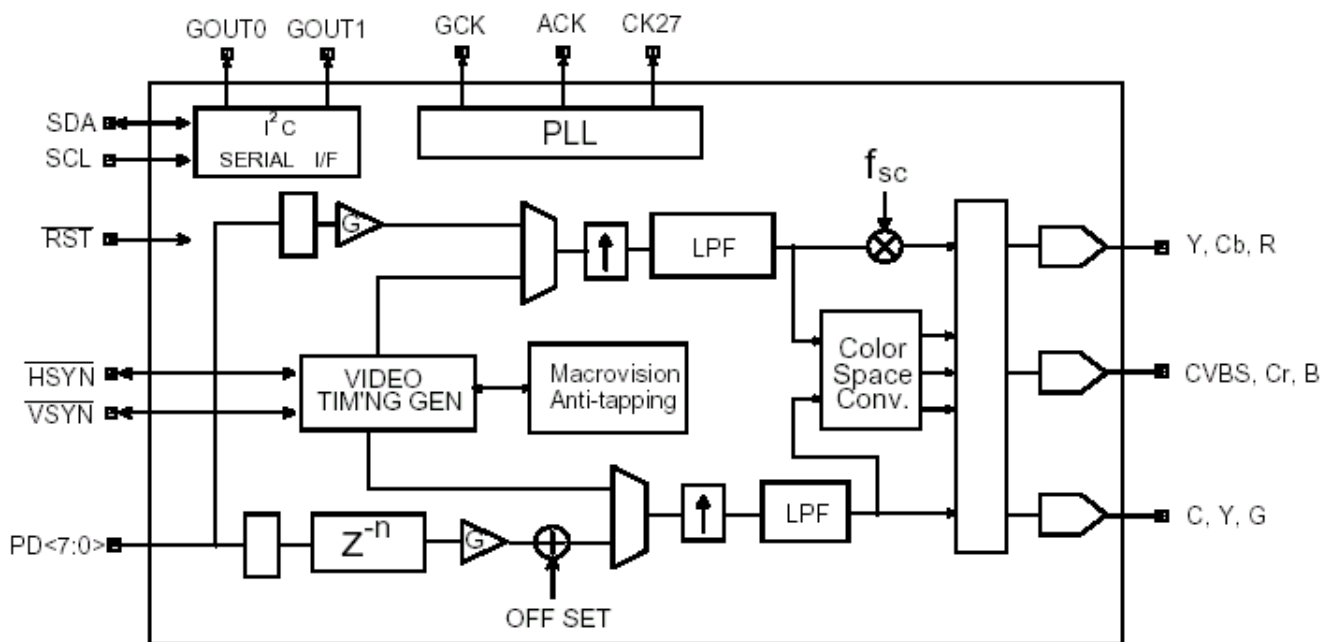
Application

- Digital Video Disk (DVD)
- Digital Set-Top Box
- PC Video, Multimedia

Ordering Information

AV3168/69-CL 44-pin PLCC

AV3168/69-CQ 44-pin TQFP

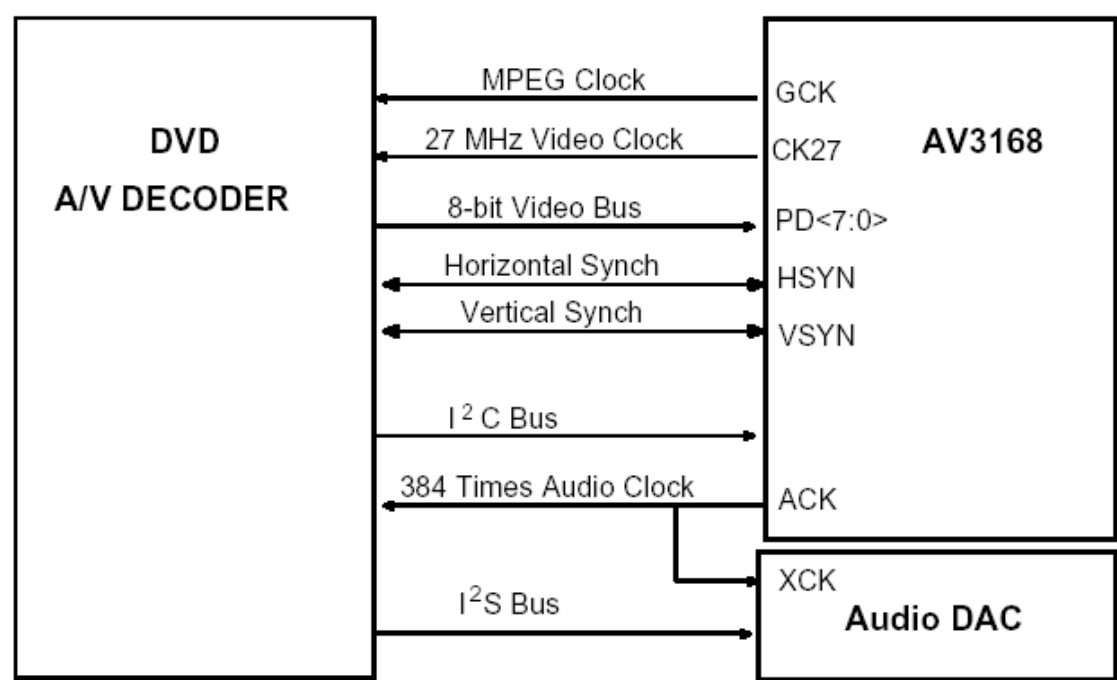


DESCRIPTION

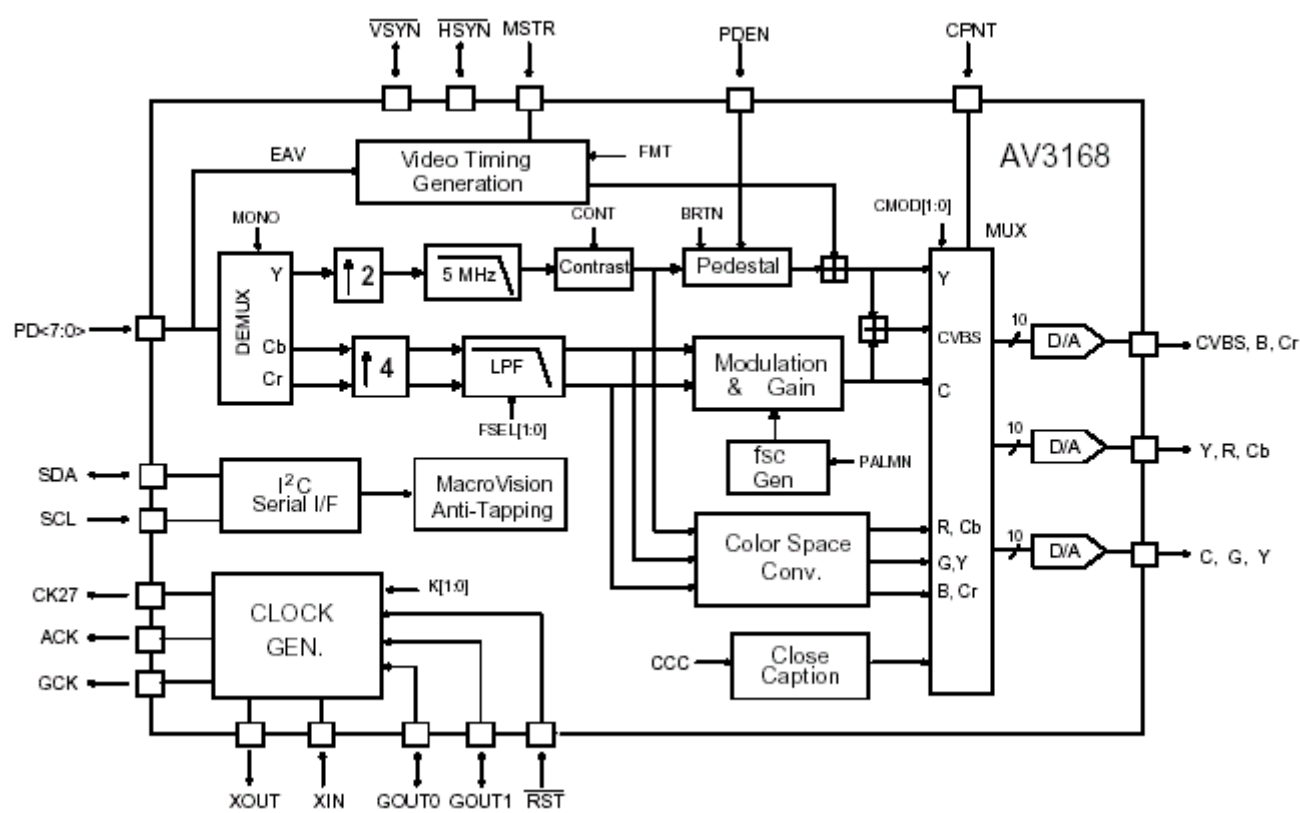
The AV3168 is a mixed signal CMOS monolithic device. It comprises with a PAL and NTSC Video Encoder, Color Space Converter and Clock Generator. The Clock Generator outputs a video, an audio and a programmable general purpose clock. This IC implemented Macrovision Anti-tapping 7.01, intended for DVD and Settop Box applications.

The video encoder converts CCIR 601 8-bit multiplexed digital video into RGB, component YCbCr, encoded NTSC or PAL (BDGHIMN) signals. It contains three 10-bit DACs to support simultaneous S-video and composite video; or component video display. Brightness and Contrast control are also provided.

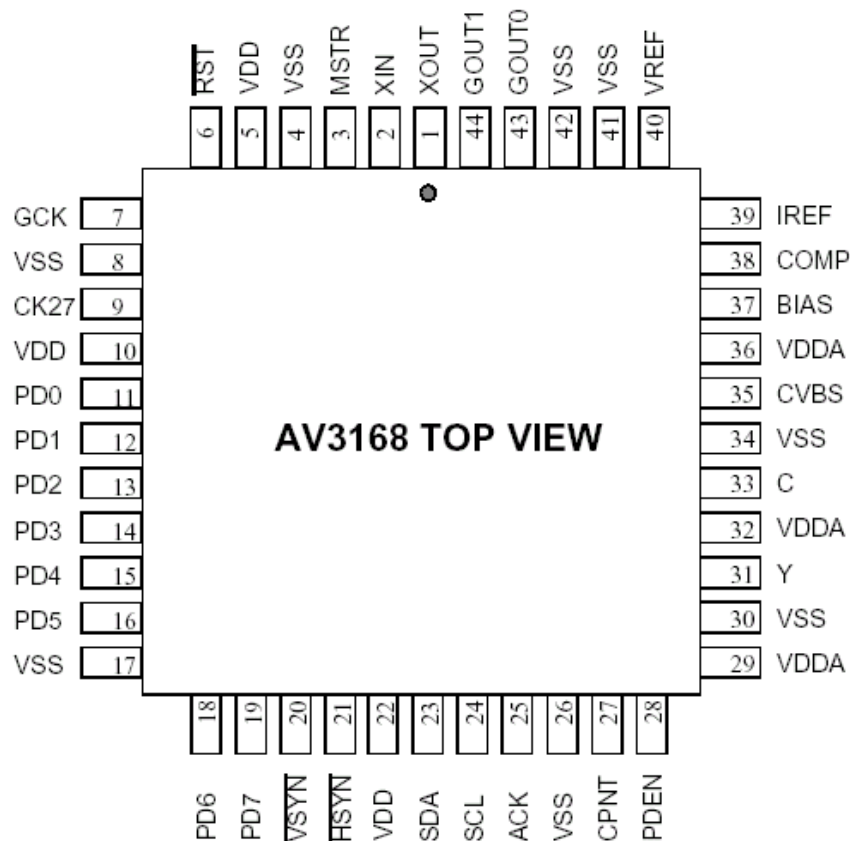
The Clock Generator outputs three clocks for video, audio and system to simplify the system configuration and maintain A/V synchronization.



Typical Application Connection



AV3168 Detailed Block Diagram



PIN DESCRIPTIONS

Pin Name	Pin #	Type	Description
DIGITAL VIDEO INPUT			
PD<7 -0>	11-16 18-19	I	Multiplexed Cb, Y, and Cr digital video input bus.
$\overline{\text{HSYN}}$	20	I/O	In Slave Mode (MSTR pin is low) Horizontal Synch input. In Master Mode (MSTR pin is high) Horizontal Synch output.
$\overline{\text{VSYN}}$	21	I/O	In slave mode (MSTR pin is low) Vertical Sync input. In master mode Vertical Sync output.
VIDEO CONTROL SIGNALS			
MSTR	3	I	Master Mode; If this pin is high, the chip outputs horizontal and vertical sync signals. Otherwise it receives both horizontal and vertical sync signals.
CPNT	27	I	Select either component or composite video output. 0: Simultaneous Composite and S-Video output. 1: Component video output either RGB or YCbCr determined by the register CR0[5:4].
PDEN	28	1	Pedestal enable pins. When this pin is high 7.5 IRE is added for the NTSC composite analog output.
VIDEO ANALOG OUTPUT, REFERENCE AND COMPENSATION			
CVBS	35	O	Analog video output Determined by the state of CPNT pin and CR0[5:4] CPNT CR0[5] CR0 [4] 0 X X: Composite video output

Pin Name	Pin #	Type	Description
			1 X 0: Cr output in CbCr component mode 1 0 X: : 1 1 1: Blue color output in RGB mode
Y	31	O	Analog video output Determined by the state of CPNT pin and CR0[5:4] CPNT CR0[5] CR0 [4] 0 X X: S-Video Y output. 1 X 0: Cb output in CbCr component mode 1 0 X: : 1 1 1: R color output in RGB mode
C	33	O	Analog video output Determined by the state of CPNT pin and CR0[5:4] CPNT CR0[5] CR0 [4] 0 X X: S-Video C output. 1 1 0: Cb output in CbCr component mode 1 0 X: : 1 1 X: Green color output in RGB mode
VREF	40	I/O	Voltage reference. It has an internal voltage reference circuit, but may be overridden by an external voltage reference input. A 0.1 uF ceramic capacitor is required between this pin and GND.
IREF	39	I	A resistor should be connected between this pin and GND to control the DAC output current. The recommended value is 198 (382) ohm 1% metal film resistor for double (single) end 75 ohm termination.
COMP	38	I	Compensation capacitor for the DAC internal reference amplifier. A 0.1 uF ceramic capacitor is required between this pin and VDDA.
BIAS	37	I/O	DAC bias voltage. A 0.1 uf ceramic capacitor must be used to de-couple this pin to VDDA.
SERIALCONTRL BUS			
SCL	24	I	Serial bus clock
SDA	23	I/O	Serial bus address and data input and output pin. Open drain output.
CLOCK SIGNALS			
GCK	7	O	General Purpose Clock. Clock frequency is determined by the state of GOUT[1:0] when $\overline{\text{RST}}$ pin is low. 0 0 : 40.5 MHz clock output. 0 1: 54.0 MHz clock output. 1 0: 67.5 Mhz clock output. 1 1: 81.0 MHz
GCK	7	O	General Purpose Clock. Clock frequency is determined by the state of GOUT[1:0] when $\overline{\text{RST}}$ pin is low. 0 0 : 40.5 MHz clock output. 0 1: 54.0 MHz clock output. 1 0: 67.5 Mhz clock output. 1 1: 81.0 MHz
CK27	9	O	27 MHz clock output pin.
ACK	25	I/O	384*fs Audio clock output pin. Controlled by CR2[1:0] 0 0: 384 * 44.1 KHz (16.934MHz) clock output. 0 1: 384 * 48.0 KHz (18.432MHz) clock output. 1 0: 384 * 88.2 KHz (33.868MHz) clock output. 1 1. 384 * 96.0 KHz (36.864MHz) clock output.
XIN	2	I	27 Mhz oscillator input
XOUT	1	O	27 Mhz oscillator output
MISCELLANEOUS SIGNALS			
$\overline{\text{RST}}$	6	I	Active low chip reset input. Chip is in the power down mode when the $\overline{\text{RST}}$ is low.
GOUT1	44	O	Dual function pin.

Pin Name	Pin #	Type	Description
			GCK frequency select pin when \overline{RST} is low. General purpose output pin when \overline{RST} is high
GOUT0	43	I	Dual function pin. GCK frequency select pin when \overline{RST} is low. General purpose output pin when \overline{RST} is high
POWER AND GROUND			
VDD	10, 22, 5	+5V	Digital power supply
VSS	8, 17, 26, 30, 34, 41, 42, 4	GND	Digital ground
VDDA	29, 32, 36	+5V	Analog video power supply

2-1-3 DVD Processor Chip (Swan-2TM ES4318)

* Features

- Single-chip DVD video decoder in a 208-pin PQFP package
- Supports MPEG-1 system and MPEG-2 program streams
- Programmable multimedia processor architecture
- Compatible with Audio CD, Video CD, VCD 3.0, and Super Video CD (SVCD)
- DVD Navigation 1
- Built-in content Scrambling System (CSS)

- Audio

- Built-in Karaoke key-shift function
- DolbyTM Digital 2-channel down mix audio output for DolbyTM
- Dolby Pro Logic
- Linear PCM streams for 24 bit / 96KHz
- Concurrent S/PDIF out and 2-channel audio output
- Sensaura Dolby Digital Virtual Surround
- DTS Digital Surround 2-channel down mix stereo output
- S/PDIF output for encoded AC-3, DTS Digital output or Linear PCM

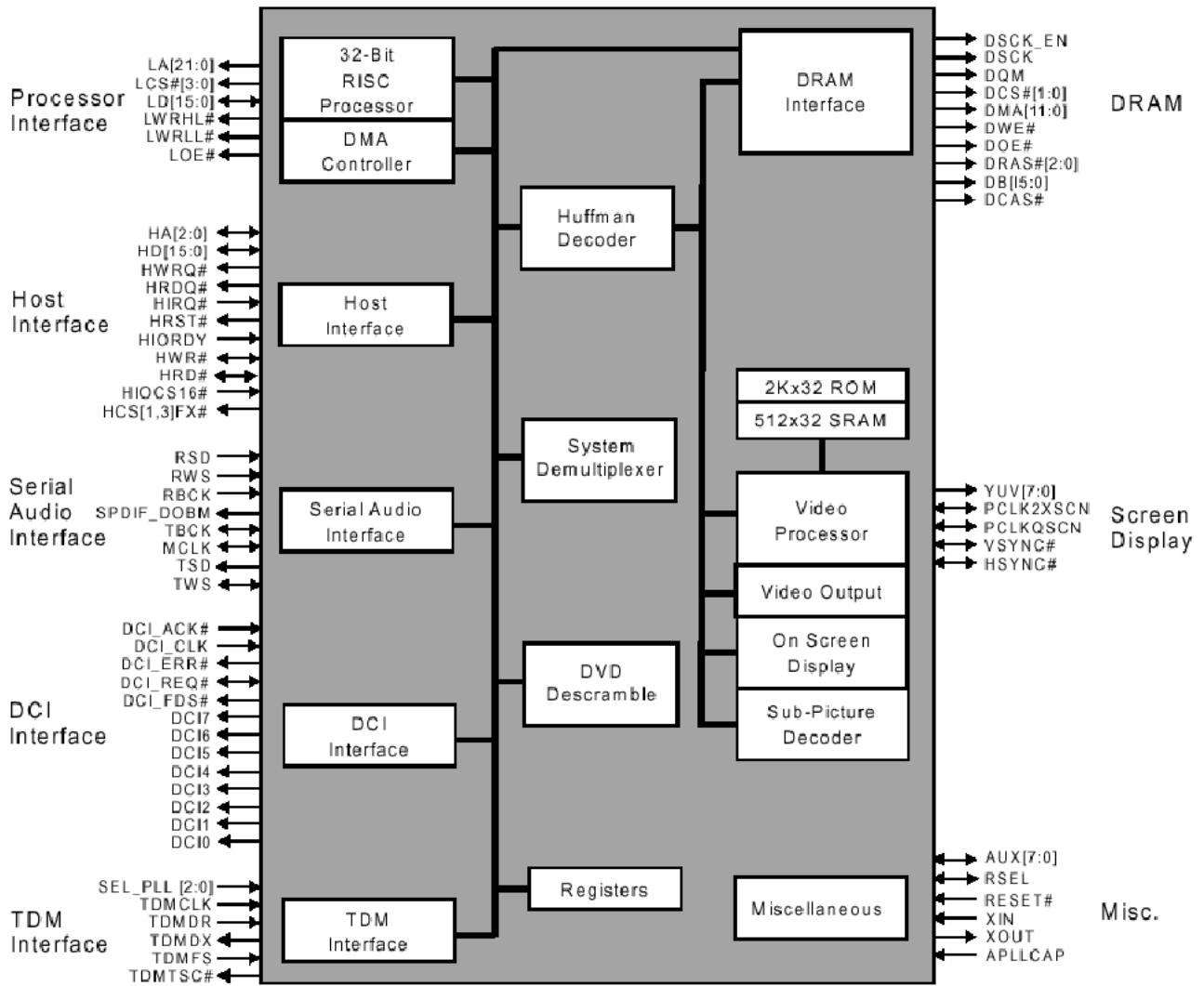
- Peripheral

- Glueless interface to DVD loaders (ATAPI or A/V bus I/F)
- Bi-directional I2C audio interface
- 8 general-purpose auxiliary ports
- Single 27MHz clock input

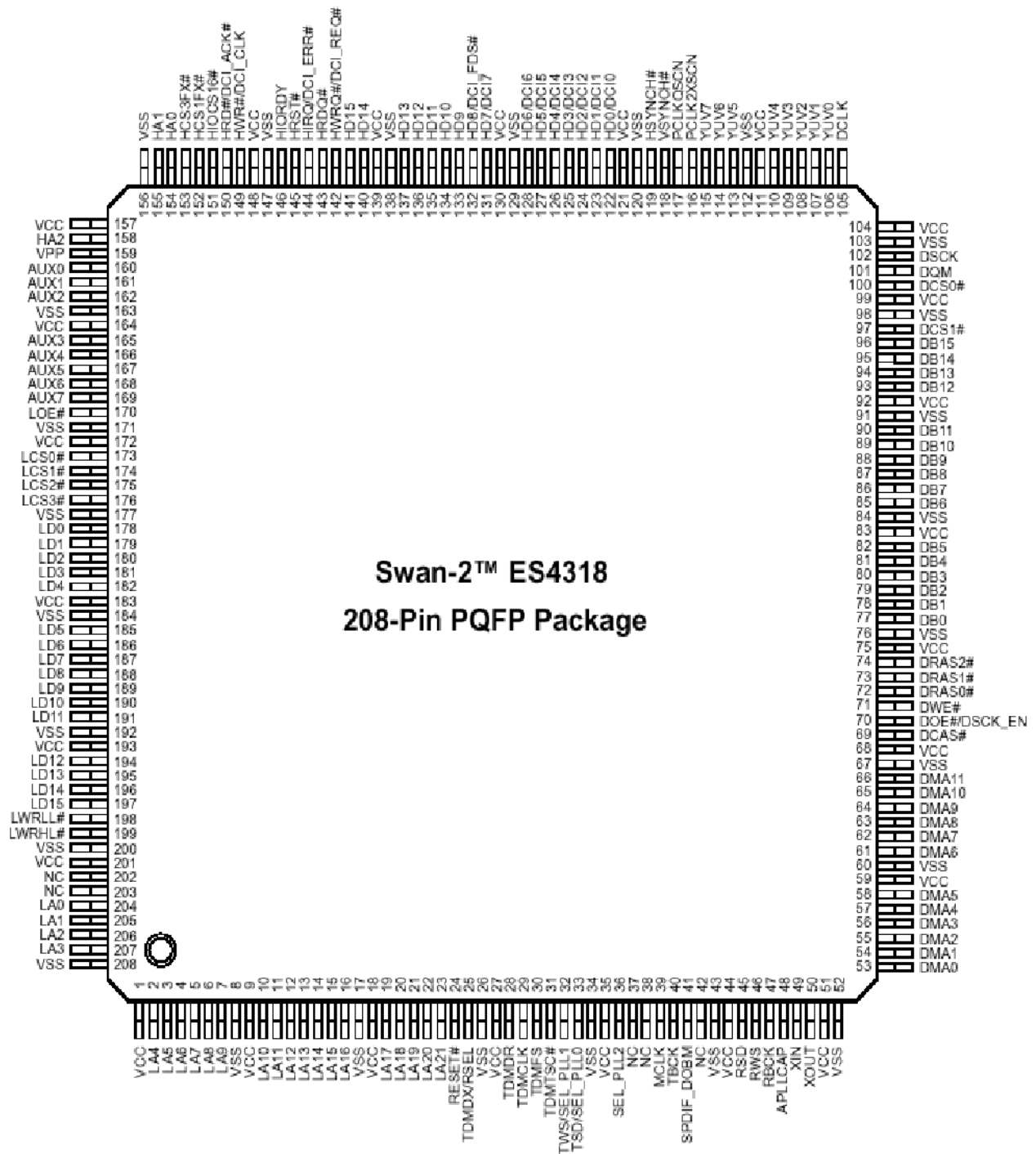
- Smart Technology

- SmartZoomTM for motion zoom & pan
- SmartZoomTM for NTSC to PAL conversion and vice versa
- SmartZoomTM for video error concealment

* Functional Description



* Pinout Diagram



* PIN DESCRIPTON

Name	Number	I/O	Definition
VCC	1, 9, 18, 27, 35, 44, 51, 59, 68, 75, 83, 92, 99, 104, 111, 121, 130, 139, 148, 157, 164, 172, 183, 193, 201	I	3.65 V \pm 150 mv.
LA[21:0]	23:19, 16:10, 7:2, 207:204	O	Device address output
VSS	8, 17, 26, 34, 43, 52, 60, 67, 76, 84, 91, 98, 103, 112, 120, 129, 138, 147, 156, 163, 171, 177, 184, 192, 200, 208	I	Ground
RESET#	24	I	Reset input active low.
TDMDX		O	TDM transmit data
RSEL	25	I	ROM Select RSEL Selection 0 16-bit ROM 1 8-bit ROM
TDMDR	28	I	TDM receive data.
TDMCLK	29	I	TDM clock input.
TDMFS	30	I	TDM frame synch.
TDMTSC#	31	O	TDM output enable, active low.
TWS	32	O	Audio transmit frame sync.
SEL_PLL1		I	Select PLL1.
TSD SEL_PLL0	33	O I	Audio transmit serial data port. Select PLL0. SEL_PLL2 SEL_PLL0 Clock Output 0 0 2.5 x DCLK 0 1 3 x DCLK 1 0 3.5 x DCLK 1 1 4 x DCLK
SEL_PLL2	36		Select PLL2. See the table for pin number 33.
MCLK	39	I/O	Audio master clock for audio DAC.
TBCK	40	I/O	Audio transmit bit clock.
SDIF_DOBM	41	O	S/PDIF (IEC958) Format Output.
RSD	45	I	Audio receive serial data.
RWS	46	I	Audio receive frame synch.
RBCK	47	I	Audio receive bit clock.
APLLCAP	48	I	Analog PLL Capacitor.
XIN	49	I	Crystal input.
XOUT	50	O	Crystal output.
DMA[11:0]	66:61, 58:53	O	DRAM address bus.
DCAS#	69	O	Column address strobe, active low.
DOE#	70	O	Output enable, active low.
DSCK-EN		I	Clock enable, active low.
DWE#	71	O	DRAM write enable, active low.
DRAS[2:0]#	74:72	O	Row address strobe, active low.
DB[15:0]	96:93, 90:85, 82:77	I/O	DRAM data bus.
DCS[1:0]#	97, 100	O	SDRAM chip select [1:0], active low.
DQM	101	O	Data input/ output mask.
DSCK	102	O	Clock to SDRAM.
DCLK	105	I	Clock input (27MHz).
YUV[7:0]	115:113, 110:106	O	8-bit YUV output.
PCLK2XSC N	116	I/O	2X pixel clock.
PCLKQSCN	117	I/O	Pixel clock.
VSYNCH#	118	I/O	Vertical synch for screen video interface, programmable for rising or falling edge, active low.
HSYNCH#	119	I/O	Horizontal synch for screen video interface, programmable for rising or falling edge,

Name	Number	I/O	Definition
			active low.
HD[15:0]	141:140, 137:131, 128:122	O	Host data bus
HCS1FX#	152	O	Host select 1.
HCS3FX#	153	O	Host select 3.
HIOCS16#	151	I	Device 16-bit data transfer.
HA[2:0]	158, 155:154	I/O	Host address bus.
VPP	159	I	Peripheral protection voltage.
HWR#/DCI_ ACK#	149	I,I	Host write/DCI interface Acknowledge Signal, active low.
HRD#/DCI-C LK	150	I,I	Host read/DCI Interface Clock.
HD[15:0]	141:140, 137:131, 128:122	I/O	Host data bus.
HWRQ#	142	O	Host write request.
HRDQ#	143	O	Host read request.
HIRQ	144	I/O	Host interrupt.
HRST#	145	O	Host reset.
HIORDY	146	I	Host I/O ready.
HWR#	149	O	Host write request.
AUX[7:0]	169:165, 162:160	I/O	Auxiliary ports.
LOE#	170	O	Device output enable, active low.
LCS[3:0]#	176:173	O	Chip select[3.0], active low.
LD[15:0]	197:194, 191:185, 182:178	I/O	Device data bus.
LWRLL#	198	O	Device write enable, active low.
LWRHL#	199	O	Device write enable, active low.
NC	37, 38, 42, 203:202		No Connect pins. Leave open

2-1-4 8-Pin, 24-Bit, 96kHz Stereo D/A CONVERTER (CS4338)

Features

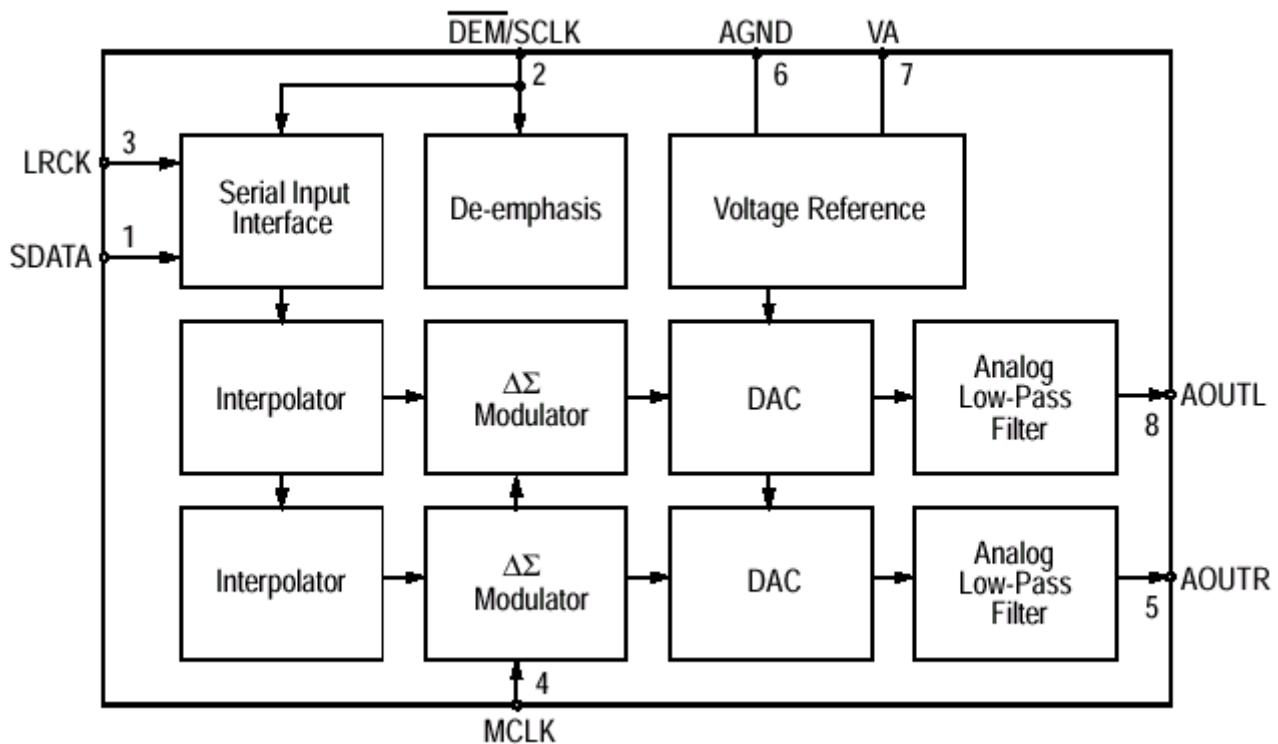
- ◆ Complete Stereo DAC System: Interpolation, D/A, Output Analog Filtering
- ◆ 24-Bit Conversion
- ◆ 96 dB Dynamic Range
- ◆ -88 dB THD+N
- ◆ Low Clock Jitter Sensitivity
- ◆ Single +5 V Power Supply
- ◆ Filtered Line Level Outputs
- ◆ On-Chip Digital De-emphasis
- ◆ Popgaud® Technology
- ◆ Functionally Compatible with CS4330/31/33

Description

The CS4334 family members are complete, stereo digital-to-analog output systems including

interpolation, 1-bit D/A conversion and output analog filtering in an 8-pin package. The CS4334/5/6/7/8/9 support all major audio data interface formats, and the individual devices differ only in the supported interface format.

The CS4334 family is based on delta-sigma modulation, where the modulator output controls the reference voltage input to an ultra-linear analog low-pass filter. This architecture allows for infinite adjustment of sample rate between 2 kHz and 100 kHz simply by changing the master clock frequency. The CS4334 family contains on-chip digital de-emphasis, operates from a single +5V power supply, and requires minimal support circuitry. These features are ideal for set-top boxes, DVD players, SVCD players, and A/V receivers.



PIN DESCRIPTIONS

SERIAL DATA INPUT	SDATA	1	8	AOUTL	ANALOG LEFT CHANNEL OUTPUT
DE-EMPHASIS / SCLK	DEM/SCLK	2	7	VA	ANALOG POWER
LEFT / RIGHT CLOCK	LRCK	3	6	AGND	ANALOG GROUND
MASTER CLOCK	MCLK	4	5	AOUTR	ANALOG RIGHT CHANNEL OUTPUT

No.	Pin Name	I/O	Pin Function and Description
1	SDATA	I	Serial Audio Data Input - two's complement MSB-first serial data is input on this pin. The data is clocked into the CS4334/5/6/7/8/9 via internal or external SCLK, and the channel is determined by LRCK.
2	DEM/SCLK	I	De-Emphasis/External Serial Clock Input - used for de-emphasis filter control or external serial clock input.
3	LRCK	I	Left/Right Clock - determines which channel is currently being input on the Audio Serial Data Input pin, SDATA.
4	MCLK	I	Master Clock - frequency must be 256x, 384x, or 512x the input sample rate in BRM and either 128x or 192x the input sample rate in HRM.
5	AOUTR	O	Analog Right Channel Output - typically 3.5 Vp-p for a full-scale input signal.
6	AGND	I	Analog Ground - analog ground reference is 0V.
7	VA	I	Analog Power - analog power supply is nominally +5V.
8	AOUTL	O	Analog Left Channel Output - typically 3.5 Vp-p for a full-scale input signal.

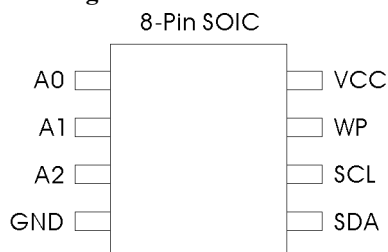
2-1-5 Serial EEPROM, 2K (256 x 8) (AT24C02/01)

* Features

- Low-Voltage and Standard-Voltage Operation
 - 5.0 (V_{CC} = 4.5V to 5.5V)
 - 2.7 (V_{CC} = 2.7V to 5.5V)
 - 2.5 (V_{CC} = 2.5V to 5.5V)
 - 1.8 (V_{CC} = 1.8V to 5.5V)

- Internally Organized 128 x 8 (1K), 256 x 8 (2K), 512 x 8 (4K), 1024 x 8 (8K) or 2048 x 8 (16K)
- 2-Wire Serial Interface
- Schmitt Trigger, Filtered Inputs for Noise Suppression
- Bi-directional Data Transfer Protocol
- 100 kHz (1.8V, 2.5V, 2.7V) and 400 kHz (5V) Compatibility
- Write Protect Pin for Hardware Data Protection
- 8-Byte Page (1K, 2K), 16-Byte Page (4K, 8K, 16K) Write Modes
- Partial Page Writes Are Allowed
- Self-Timed Write Cycle (10 ms max)
- High Reliability
 - Endurance: 1 Million Write Cycles
 - Data Retention: 100 Years
 - ESD Protection: >3000V
- Automotive Grade and Extended Temperature Devices Available
- 8-Pin and 14-Pin JEDEC SOIC, 8-Pin PDIP, 8-Pin MSOP, and 8-Pin TSSOP Packages

* Pin Configurations



* Pin Description

Pin Name	Function
A0-A2	Address Inputs
SDA	Serial Data
SCL	Serial Clock input
WP	Write Protect
NC	No Connect

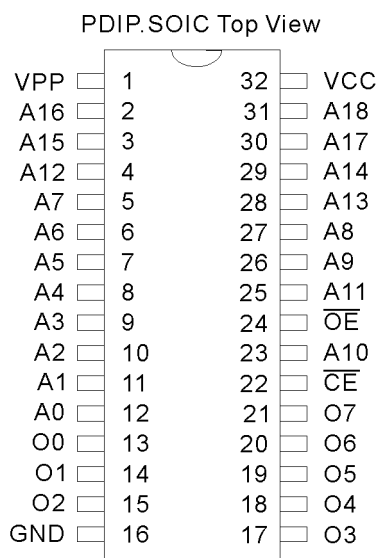
2-1-6 4-Megabit (512 x 8) FLASH RAM (MX29F040)

* Features

- Fast Read Access Time – 70 ns
- Low power CMOS Operation
 - 100 μ A max. Standby
 - 30 μ A max. Active at 5 MHz
- JEDEC Standard Packages
- High Reliability CMOS Technology
 - 2000V ESD Protection
 - 200 mA Latchup Immunity
- Rapid™ Programming Algorithm – 100 μ s/byte (typical)
- CMOS and TTL Compatible Inputs and Outputs

- Integrated Product Identification Code
- Commercial and Industrial Temperature Ranges

* Pin Configurations



* Pin Description

Pin Name	Function
A0 – A18	Addresses
O0 – O7	Outputs
CE#	Chip Enable
OE#	Output Enable

* Absolute Maximum Ratings

Temperature Under Bias.....-55°C to + 125 °C
 Storage Temperature.....-65 °C to + 150 °C
 Voltage on Any Pin with Respect to Ground.....-2.0V to + 7.0V
 Voltage on A9 with Respect to Ground.....-2.0V to + 14.0V
 V PP Supply Voltage with Respect to Ground.....-2.0V to + 14.0V

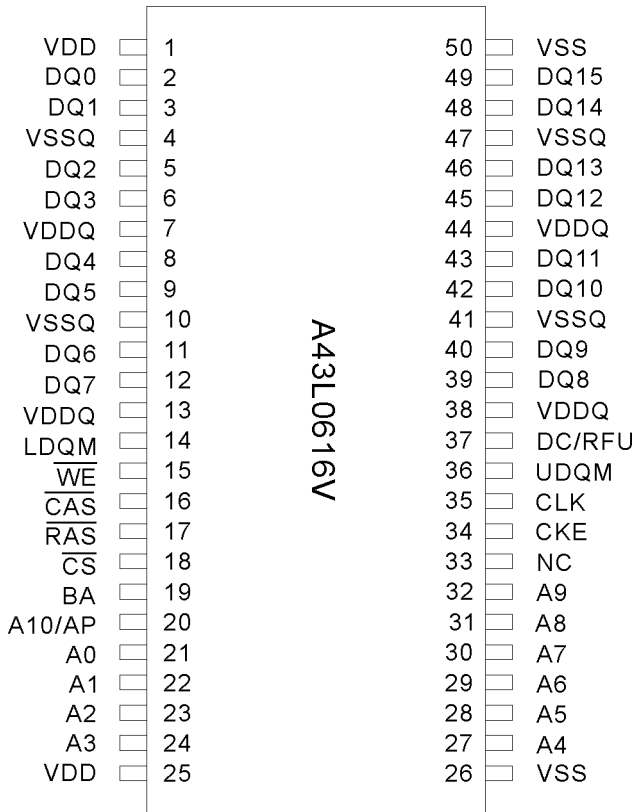
2-1-7 512K X 16 Bit X 2 Banks Synchronous DRAM (A43L0616)

Features

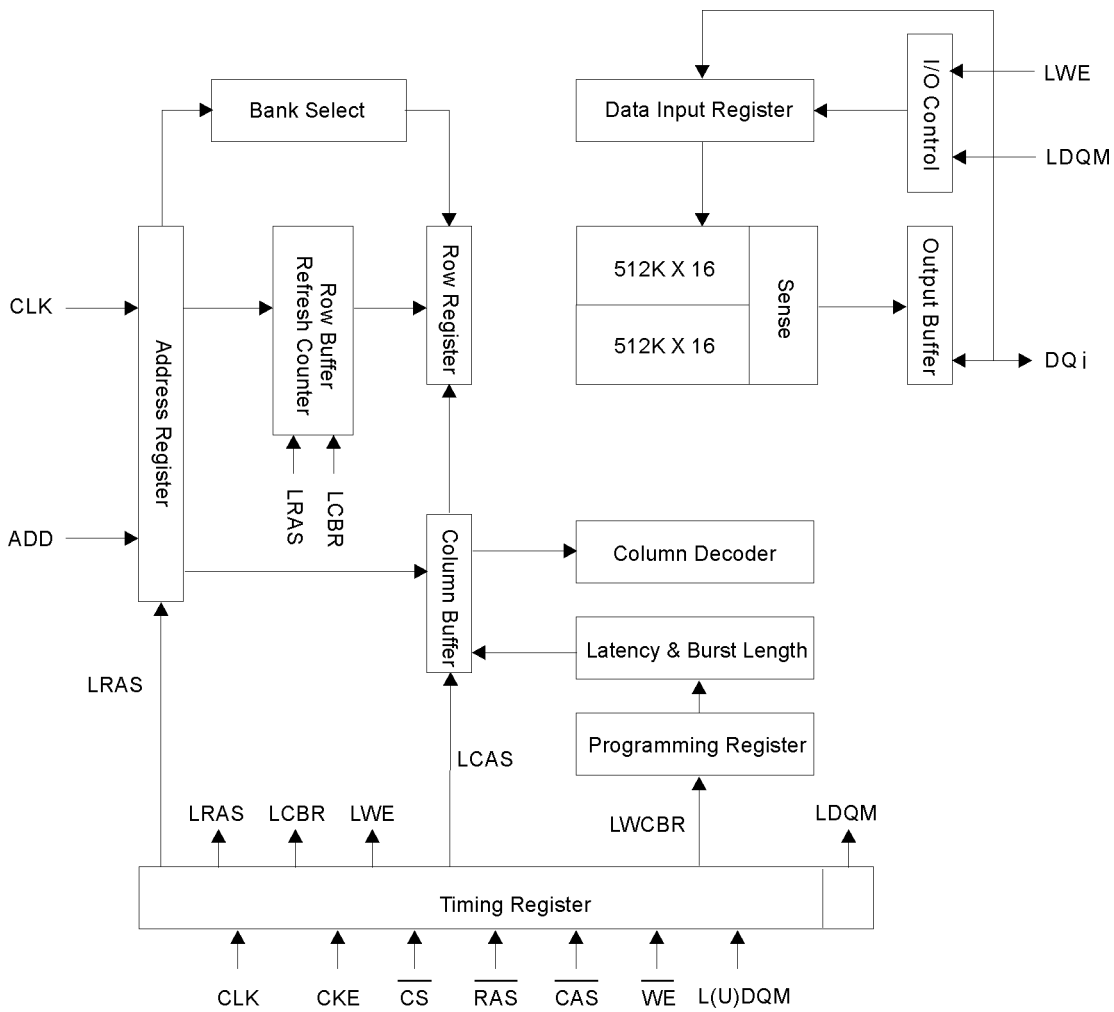
- JEDEC standard 3.3V power supply
- LVTTTL compatible with multiplexed address
- Dual banks / Pulse RAS
- MRS cycle with address key programs
 - CAS Latency (2,3)
 - Burst Length (1,2,4,8 & full page)
 - Burst Type (Sequential & interleave)

- All inputs are sampled at the positive going edge of the system clock
- Burst Read Single-bit Write operation
- DQM for masking
- Auto & self refresh
- 64ms refresh period (4K cycle)
- 50 Pin TSOP (II)

Pin Configuration



Block Diagram



Pin Descriptions

Symbol	Name	Description
CLK	System Clock	Active on the positive going edge to sample all inputs
CS	Chip Select	Disables or Enables device operation by masking or enabling all inputs except CLK, CKE and L(U)DQM
CKE	Clock Enable	Masks system clock to freeze operation from the next clock cycle. CKE should be enabled at least one clock + tss prior to new command. Disable input buffers for power down in standby.
A0~A10/AP	Address	Row/Column addresses are multiplexed on the same pins. Row address: RA0 ~ RA10, Column address: CA0 ~ CA7
BA	Bank Select Address	Selects bank to be activated during row address latch time. Selects band for read/write during column address latch time.
RAS	Row address Strobe	Latches row addresses on the positive going edge of the CLK with RAS low. Enables row access & precharge.
CAS	Column Address Strobe	Latches column addresses on the positive going edge of the CLK with CAS low. Enables column access.
WE	Write Enable	Enables write operation and Row precharge.

Symbol	Name	Description
L(U)DQM	Data Input/Output Mask	Makes data output Hi-Z, t SHZ after the clock and masks the output. Blocks data input when L(U)DQM active.
DW0-15	Data Input/Output	Data inputs/outputs are multiplexed on the same pins.
VDD/VSS	Power Supply/Ground	Power Supply: +3.3V±0.3V/Ground
VDDQ/VSSQ	Data Output Power/Ground	Provide isolated Power/Ground to DQs for improved noise immunity.
NC/RFU	No Connection	

3. Product Specifications

Playback System

DVD Video
Video CD (1.1, 2.0, 3.0)
SVCD and CVD
CDDA
CD-ROM with MP3 data

Television Signal System

NTSC/PAL

Video Performance

Video Out	1 Vpp into 75 ohm
S-Video Out	Y: 1Vpp into 75 ohm C: 0.286 Vpp into 75 ohm
Component Out	0.7 Vpp into 75 ohm
D/A Converter	27MHz/10bit

Audio Performance

Frequency Response	DVD: fs 48/96KHz, 4Hz~22/44KHz Video CD: fs 44.1KHz, 4Hz~20KHz Audio CD: fs 44.1KHz, 4Hz~20KHz
Output Level	Analog: 2Vrms(1KHZ) Digital: 1.15 Vpp
D/A Converter	96KHz/24bit
S/N Ratio	90dB

Connections

Coaxial digital out	X1
Audio Analog out for 2-channel	X1
Composite Video out	X1
S-Video out	X1

Power Supply

Power Source	AC100~240V, 50/60Hz
Power Consumption	<25 Watt

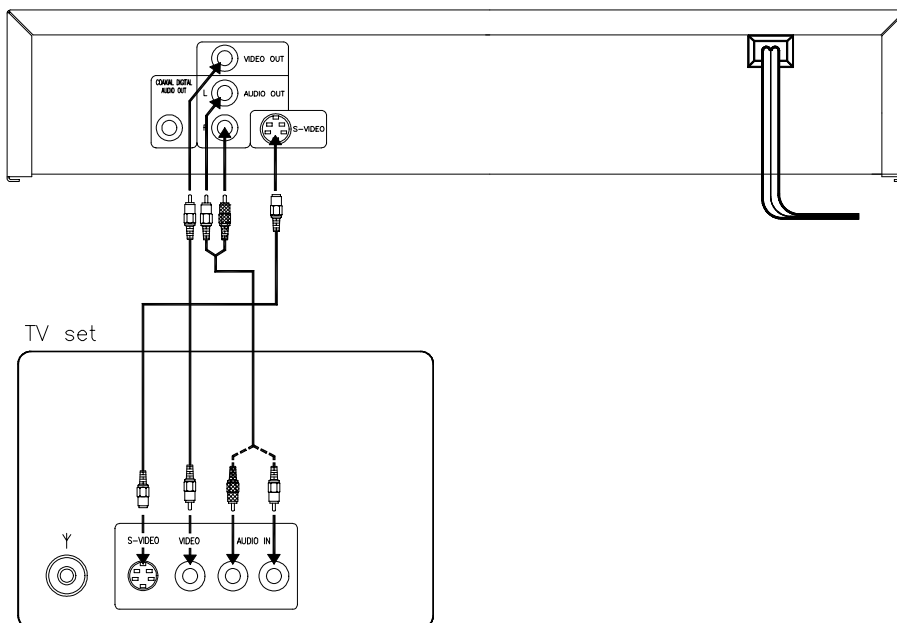
Set

Dimensions (W X H X D)	495 X 155 X 348 (mm)
Net Weight	4.0 Kg
Gross Weight	4.5 Kg

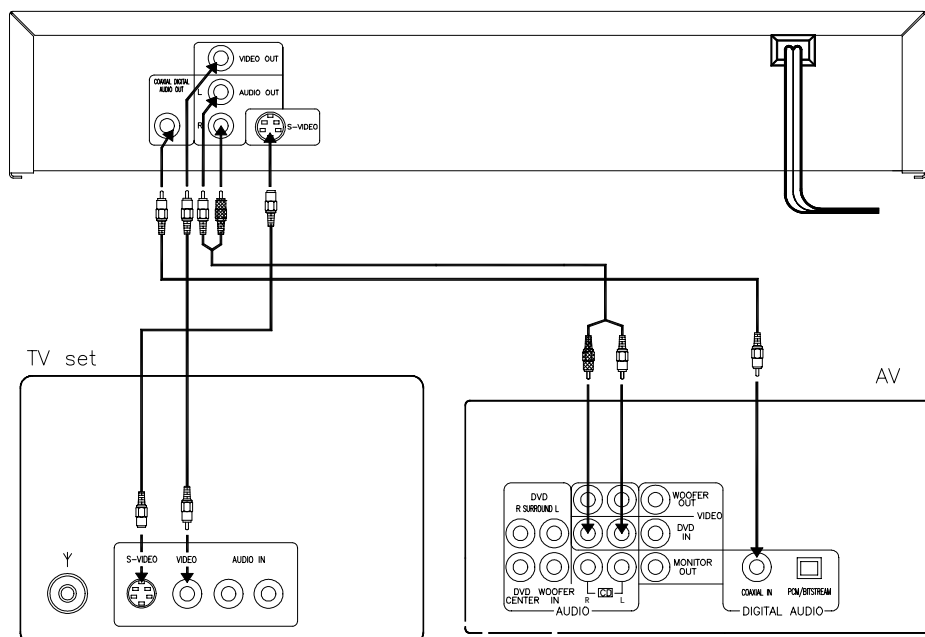
4. Operating Instructions

4-1 Basic Connections

* CONNECTED TO A TV



* CONNECTED TO AN ORDINARY AMPLIFIER



4-2 Selecting Video MODE

Press **SETUP** button and select **GENERAL SETUP** submenu on **SETUP** screen. After that, select **TV TYPE** by pressing **DOWN** arrow button (▼) until desired TV mode is selected. For more information, refer to Page 34-36 on the Instruction Manual.

4-3 Selecting the desired DVD menu Item

Some DVDs have title menus and chapter menus. Press MENU or TITLE, the screen shows the menu. Then use direction buttons to select the desired item, press PLAY.

4-4 Selecting the desired MP3 folder

Use arrow button to select the folder you want to play. Then by pressing the PLAY button, you can see the file lists under the folder.

Example:

Press the PLAY button

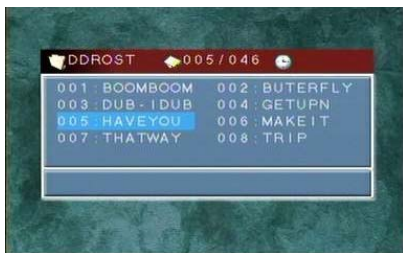


4-5 Selecting the desired MP3 title

Use arrow button and select an MP3 title using the PLAY button then play will start automatically. When you know the title number, enter the MP3 title number using numeric buttons on the remote control and press the PLAY button. If you want to play an adjacent MP3 title, press the NEXT button for next title and the PREV button for previous title during playing. To select “005 HAVEYOU” MP3 title in this case, press the DOWN arrow button twice and press the PLAY button.

Example:

1. Press the DOWN arrow button (▼)
2. Press the DOWN arrow button (▼)
3. Press the SELECT button



4-6 Searching

When you want to view the disc contents in fast forward or fast reverse, you can do that by pressing FF button (►►) or FR button (◀◀). When playing DVD, there are five choices for both directions: FAST2X, FAST4X, FAST8X, FAST16X, FAST32X. When playing SUPER-VCD or VCD, four choices for both directions: FAST1X, :FAST2X, :FAST3X, :FAST4X. When playing CD.MP3, press ►► to play forward fast and ◀◀ to reverse the disc.

4-7 Resume Play

The unit can memorize the last point where it stops and resume playback from there. While playing CD, MP3, press STOP to stop playing and then press MEMORY to resume playback. However, this function does not work for any programmed playback; it is removed when the disc is unloaded or the unit is off.

4-8 Slow Viewing

When you want to view the disc contents very slowly in forward or reverse direction, you can do that by pressing the SLOW button. When playing DVD, there are six choices: SF2X, SF4X, SF8X, SR2X, SR4X, SR8X. While playing SUPER-VCD OR VCD, there are three choices: SF1x, SF2x, SF3x. Take DVD for example, to view at slow 2x in reverse direction, press the slow button four times. To resume playing normally, just press PLAY.

4-9 Selecting Audio Language

This function works only with discs on which multiple audio sound track languages are recorded. If the loaded disc supports multiple languages, you can see the AUD indicator on fluorescent display. IN the figure shown right, there are total 8 audio languages. To select the third audio language, press the AUDIO button twice during play.

Example:

1. Press the AUDIO button
2. Press the AUDIO button



4-10 Selecting Subtitle Language

This function works only with discs on which multiple subtitle languages are recorded. If the loaded disc supports multiple languages, you can see the SUB-T indicator on fluorescent display. In the figure shown right, there is only one subtitle language. To turn on the subtitle language, press the SUBTITLE button. If you press it again, you can turn off the subtitle language.

Example:

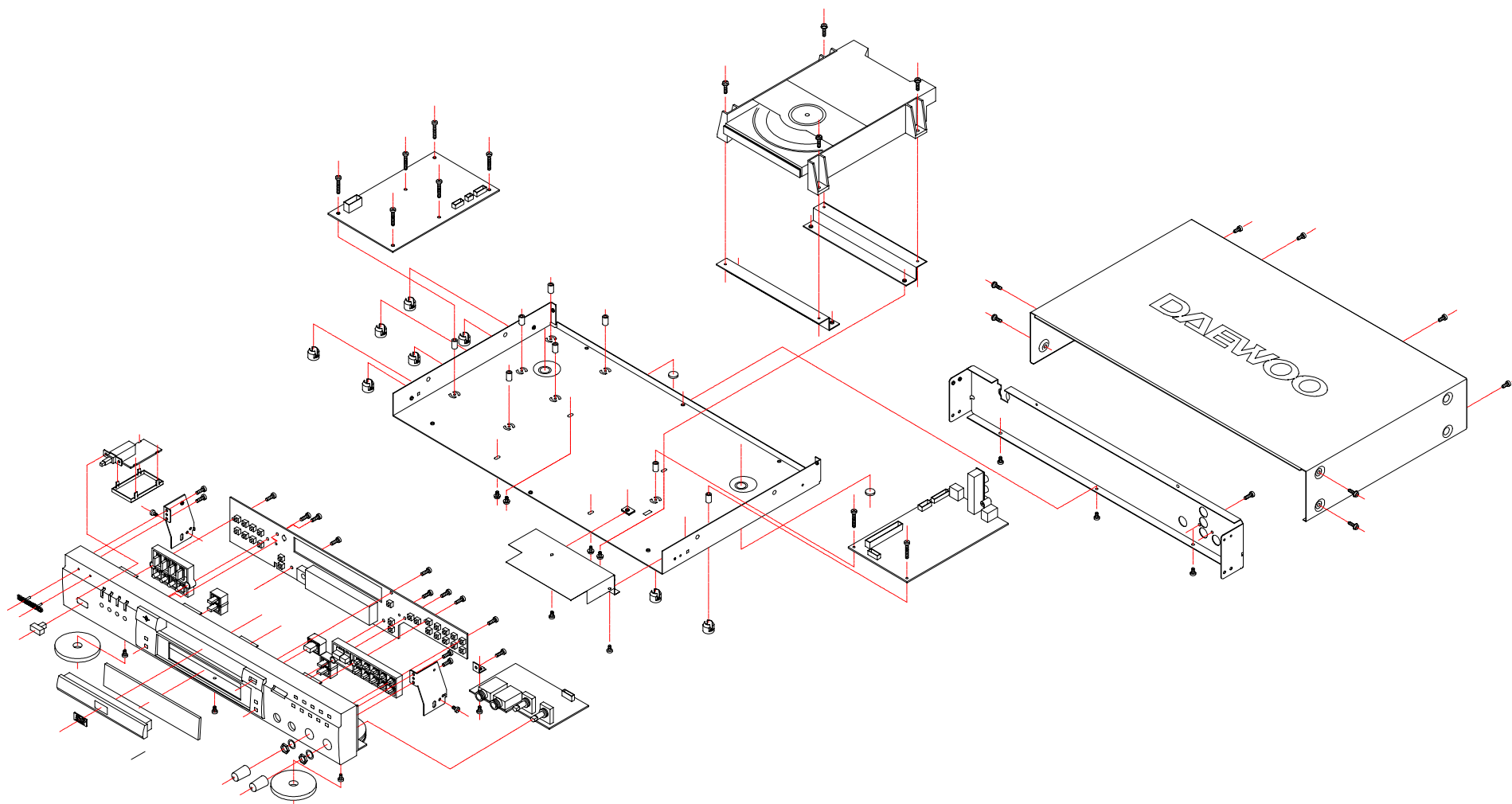
1. Press the SUBTITLE button



4-11 Selecting Angle

Some DVD discs may contain scenes, which have shot simultaneously from a number of different angles. If the loaded disc supports multiple angles, you can see indicator on the fluorescent display and the TV screen. In the figure shown right, there are total 4 angles. To switch to the angle number2, press the ANGLE button.

5. Disassembly and Reassembly



6. Troubleshooting

No power	Insert the AC power plug securely into the power outlet.
No picture	Make sure that the equipment is connected properly. Make sure that the input setting for TV is Video (AV).
No sound	Make sure that the equipment is connected properly.
Distorted sound	Make sure that the input settings for the TV and stereo system are correct.
No fast forward or fast reverse	Some discs may have sections that prohibit fast forward or fast reverse.
No proper aspect ratio	Select the correct setup for TV aspect ratio that matches your TV set.
No operations can be performed with the remote controller	Check the batteries are installed with the correct polarities. Point the remote control unit at the remote control sensor and operate. Remove the obstacles between the remote control unit and remote control sensor.
No button operation	Set the POWER button to OFF and then back to ON. Alternatively, turn off the power, disconnect the power plug and then reconnect it.
Audio soundtrack and/or Subtitle language is not the one you selected.	If the audio soundtrack and /or subtitle language does not exist on the disc, the language selected at the initial settings will not be seen.
No Angle change	This function is dependent on software availability. Even if a disc has a number of angles recorded, these angles may be recorded for specific scenes only.

7. Electrical Part List

DVG-4000N PRODUCT DESIGN PACKAGE LIST

No.	Name	Counts	Blueprint No.	Material No.	Notes
1	DVG4000N surface subassembly	1		BC-PMGDVG3000N	
2	HPT DVD machine core	1		JX-HPTAM-2266	
3	bracket of machine core	2		WJ-JXZJ930E5	the height of HPT machine core:17.5mm
4	DAYU DVD two-channel decoding subassembly	1	GV-DJH930	BC-PDJH930-01	with phone output
5	GV-DPA868 subassembly	1	GV-DPA868	BC-PDPA86802	10/20/2k
6	motherboard	1	GV-DZ930E2-03	WJ-DZ930E2-03	silver gray,use electrolyzed iron
7	backboard	1	GV-HB3000N-01	WJ-HBDVG3000N	the number of silk-screen paper:GV-HB3000N-01SY
8	outer cover	1	GV-WZ3000N	WJ-WZ3000N	with mark DAEWOO
9	wire of power-supply	1		DY-1M8LYTWKUL	black, two-head, both-insulated ,polar,with UL certificate
10	PE bag of power-supply wire	1		BZ-JDDYX-01	unit : 80*160mm with mark of environment-protecting
11	尼龙带扎线 fastening string made of nylon ribbon	5		FJ-FJNLZX	
12	black fastening string	1		FJ-FJHZX	for power-supply wire
13	magnetic ring	1		CH-281675	outer diameter: 28mm inter diameter: 16mm height: 7.5mm

No.	Name	Counts	Blueprint No.	Material No.	Notes
14	MIC shielded sheet iron	1	GV-MICPBZ930-01	WJ-MICPBZ930	
15	930B CD gate-bar	1	GV-CDM930HPT-01	SJ-CDM930HPT	for HPT machine core
16	DVD paster for trademark	1		SJ-DVDSBP	with background black and characters silvery
17	strut for circuit board	8		SJ-XLBJZ-01(新)	decodeing board 2、 power-supply board 6
18	plastic nut cap	8		SJ-XLBJZ-02(新)	decodeing board 2、 power-supply board 6
19	970 rubber tray	2		SJ-VCDJJD2MM	thickness 2mm、 diameter 10mm
20	VCD rubber tray	3		SJ-VCDJJD5MM	thickness 5mm、 diameter 50mm
21	remote control unit	1	BZ-YKQDVG3000N	BZ-YKQDVG3000N	black ENGLISH,for black DVG3000N
			BZ-YKQDVG3000N-01	BZ-YKQDVG3000N-01	gray ENGLISH,for silvery DVG3000N
22	battery	1 对		FJ-DC7#04	7# environment-protecting Hg-Ca battery ENGLISH
23	PE bag for remote control unit	1		BZ-JDYKQ-03	unit: 05 * 80*260mm
24	manual	1		BZ-SMSDVG-3000N	英文
25	PE bag for remote control unit	1		BZ-JDYKQ-03	unit: 05*80*260mm with environment-protecting mark
26	foam	1 套	GV-PMDVD-03	BZ-PMDVD-03(新)	340*143*65
27	handle of colourful box	1		BZ-CHTS-01	
28	colourful box	1	GV-CHDVG3000N-01	BZ-CHDVG3000N	
29	pearl cotton 480*580	1		FJ-ZZMD-02	unit: mm with environment-protecting mark

No.	Name	Counts	Blueprint No.	Material No.	Notes
30	nail BTV3*10 colourful zinc	4		LD-BTPW3*10C	machine core 4
31	with-cap hardened nailBTPW3*8 colorful zinc	8		LD-BTPW3*8C	outer cover 4、 machine cover 4
32	round-headed self-fastened hardened nailBTV3*6 colorful zinc	12		LD-BTV3*6C	backboard 3, outer cover 4, side cover 2, cover and motherboard 3
33	round-headed self-fastened hardened nailBTV3*16 colorful zinc	8		LD-BTV3*16C	power-supply board 6、 decoding board 2
34	plain-headed triangular nail colorful zinc	2		LD-BB3*8C	optical fiber、 audil output board
35	acute-headed nail BA3*8 colorful zinc	1		LD-BA3*8C	same-axis output board
36	tooth-shaped BBM3*8 colorful zinc	2		LD-BBM3*8	mental shielding 2
37	M diameter 3mm nut	2		LD-M3	mental shielding 2
38	video two-terminator yellow wire 1.5mm	1		DY-XSPLTLHX	linear figure,black
39	audio four-terminator red-white 1.5mm	1		DY-XPSTLHX	linear figure,black
40	bar code			FJ-TZTXMDVG3000N	provided by client
41	assembly line number			FJ-LSHDVG3000N	provided by client
42	warranty card	1		BZ-BYZDVG3000N	ENGLISH, designed by client
43	2.54 connector /2.54 connector 40Pgray row-wire 250mm	1		PX-B250B40H	from decoding board to machine core
44	2.54 connector 4P 130mm 5.0 head colorful wire	1		PX-F130B4C01	from power-supply board to machine core

No.	Name	Counts	Blueprint No.	Material No.	Notes
45	2.54 connector/2.54connector 6P red-white row-wire 260mm	1		PX-B260B6R	from power-supply board to decoding board

The list for cover subassembly design of DVG4000N

No.	Name	Counts	Blueprint No.	Material No.	Notes
1	trademark	1	GV-SBPDAEWOO	WJ-SBPHDYZDAEWOO	(DAEWOO)
2	DVG3000N panel	1	GV-MB930	SJ-MB3000N	silk-screen blueprint No.: GV-MB3000N-01
3	DV930 power-supply button	1	GV-DYN930-01	SJ-DYN930	
4	GV320S knob	2	GV-DWQXN320-01	SJ-XN320	
5	number button	1	GV-SZN930-01	SJ-SZN930	
6	fast forward button	1	GV-KJN930-01	SJ-KJN930	
7	pause button	2	GV-ZTN930-01	SJ-ZTN930	
8	load/unload button	1	GV-CHN930-01	SJ-CHN930	
9	light-transporting canister	1	GV-DGT920	SJ-DGT920	
10	930LCD screen lens	1	GV-XSJ3000N-01	SJ-XSTJ3000N	silk-screen blueprint No.: GV-XSTJ3000N-01
11	the left bracket for 550 panel	1		WJ-MBCZJZ550	
12	the right bracket for 550 panel	1		WJ-MBCZJY550	
13	the subassembly of 930 crystal control pannel	1		BC-PDCA930L-01	
14	the subassembly of DHB910 earphone board	1		BC-PDHB910-01	
15	aluminium bar	2		WJ-LJT	front foot(0.3*5*18)

No.	Name	Counts	Blueprint No.	Material No.	Notes
16	plain-headed triangular nail BB3*8 colorful zinc	16		LD-BB3*8C	control panel 9、 bracket for cover 4、、 microphone board 1 、 power-supply switch 2
17	power-supply cover	1		SJ-DYG	
18	safety pasting-paper	1		FL-ACTZ	
19	ordinary green round-headed LED	1		FG-3MMBFLGL	diameter: 3mm round-headed

The components design list for control panel

No.	Name/Specification	Counts	Position in the paper	Material No.	Notes
resistor					
1	resistor 220E 1/4W 10%	1	R1	DZ-RT220EYS	
2	resistor 47E 1/4W 10%	1	R2	DZ-RT47EYS	
porcelain capacitor					
3	porcelain capacitor 270P 50V 20%	2	C3,C4	CC-271Y505	diameter:5mm
4	porcelain capacitor 104 50V -20%~+80%	1	C1	CC-104Y505	diameter: 5mm
electrolyzed capacitor					
5	electrolyzed capacitor 47UF 16V	1	C2	CD-47W165	diameter:5mm
diode					
6	infrared-emitting diode	1	L1	EJ-HXFSEJG5MM	diameter:5mm,E,B,C PACKAGE
triode					
7	triode 9014	1	Q1	MD-9014350-700	β 350~700
oscillator					
8	oscillator 455E	1	X1	JJ-Z455E	

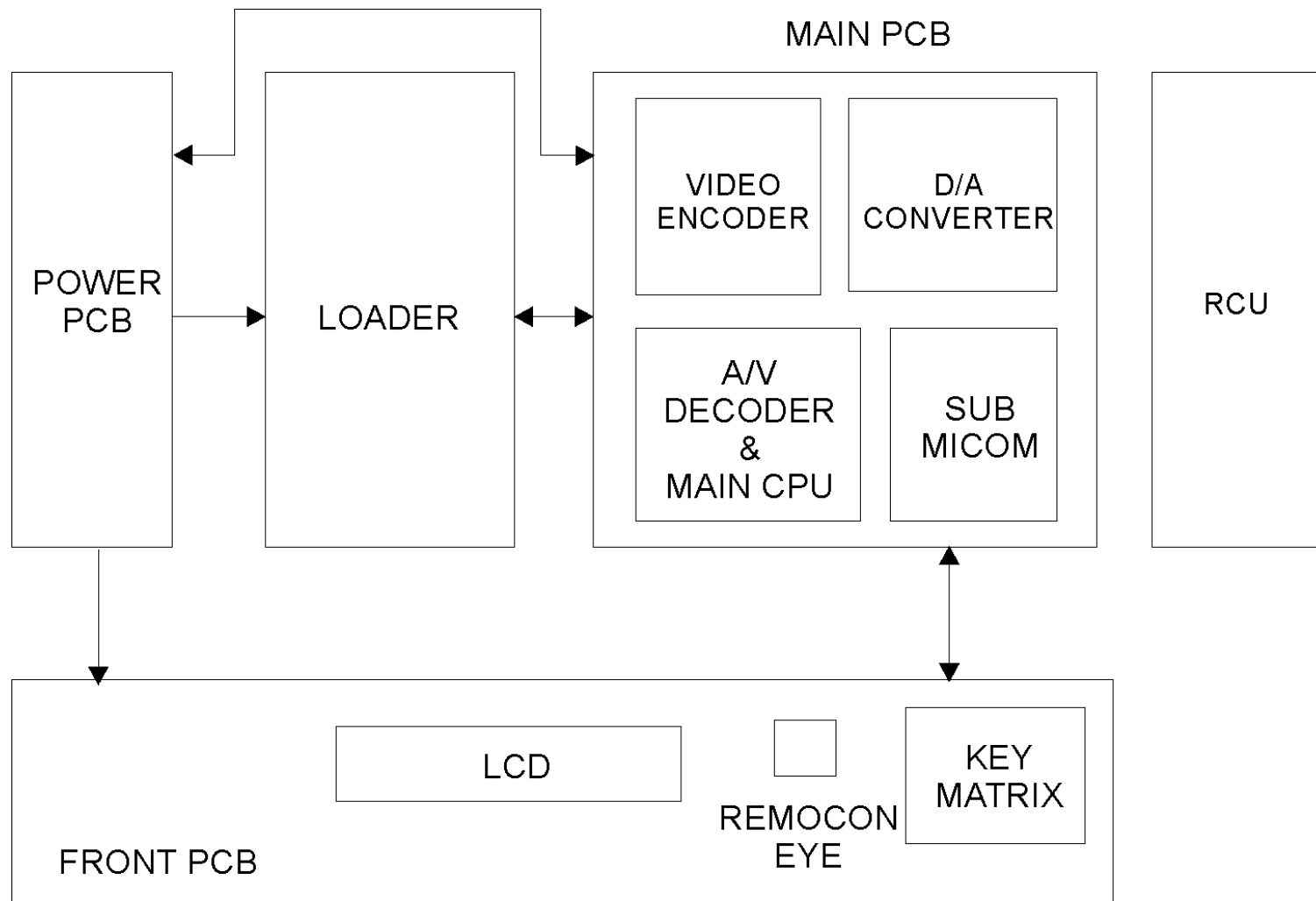
No.	Name/Specification	Counts	Position in the paper	Material No.	Notes
IC					
9	IC HT6221/M21-001	1	IC2	IC-HT6221	
10	LCD screen-driving bounded IC	1		IC-LCDQDBD	M209A/DICLDRY
accessories					
11	LCD screen	1	IC2	XS-PLCD	
12	the background light of LCD screen	1		FJ-LCDBDJ	needed power-supply:4.4V
13	control panel	1	GV-DCB930L	PCBDKZB930-02	2001-5-5
14	touching-softly switch	25	K1~K25	KG-QCKG6*6*5-01	6*6*5
15	remote control receiver	1		JS-TRM8310	IRM8310
16	power switch	1		KG-DYKG01	TV-5 (KDC-A10-1D) 8A/128A 交流 250V
17	2.54connector 2P without-terminator red-white row-wire 260mm	1		RX-B260W2R	from control board to power-supply board
18	2.54 connector 6P red-white row-wire 280mm	1		RX-B280W6R01	from control board to decoding board
19	no-terminator 6P 2.0 gray row-wire 60mm	1		PX-W60W6H	from control board to LCDIC board
20	3.96connector 2P no-terminator 150 red both-insulated	1		PX-E150W3R01	from switch board to power-supply board
21	iron thread 8mm	1	J1,J3,J4	FJ-TX8MM	diameter:0.6mm
22	iron thread 10mm	1	J2	FJ-TX10MM	diameter:]0.6mm
23	magnetic circle	1		CH-22513864	outer diameter: 22.5mm inner diameter: 13.8mm height: 6.4mm

The component design list for DV-910 earphone board

No.	Name	Counts	Blueprint No.	Material No.	Notes
resistor					
1	resistor 10E 1/4W 10%	4	R1,R2,R8,R9	DZ-RT10EYS	
2	resistor 1K 1/4W 10%	2	R21,R22	DZ-RT1KYS	
3	resistor 4.7K 1/4W 10%	5	R4,R6,R7,R12,R13	DZ-RT4K7YS	
4	resistor 5.1K 1/4W 10%	5	R10,R15,R16,R23,R24	DZ-RT5K1YS	
5	100K 1/4W 10%	2	R17,R18	DZ-RT100KYS	
6	resistor 22K 1/4W 10%	2	R19,R20	DZ-RT33KYS	
7	resistor 47K 1/4W 10%	4	R3,R5,R11,R14	DZ-RT47KYS	
porcelain capacitor					
8	porcelain capacitor 101 50V 10%	4	C3,C4,C9,C11	CC-101Y505	diameter:5mm
electrolyzed capacitor					
9	electrolyzed capacitor 10UF 16V 20%	12	C1,C2,C6,C7,C8,C10,C13,C14,C15,C16,C17,C18	CD-10UW165	diameter:5mm
10	electrolyzed capacitor 100UF 16V 20%	2	C5,C12	CD-101W165	diameter:5mm
IC					
11	IC JRC4558	2	IC1,IC2	IC-4558	
triode					
12	triode 2SC1815	2	Q1, Q2	MD-2SC1815350-650	$\beta=350\sim 650$
accessories					
13	inserting hole for microphone silvery side four-foot mode	2	MIC1, MIC2	CZ-HTCK03	

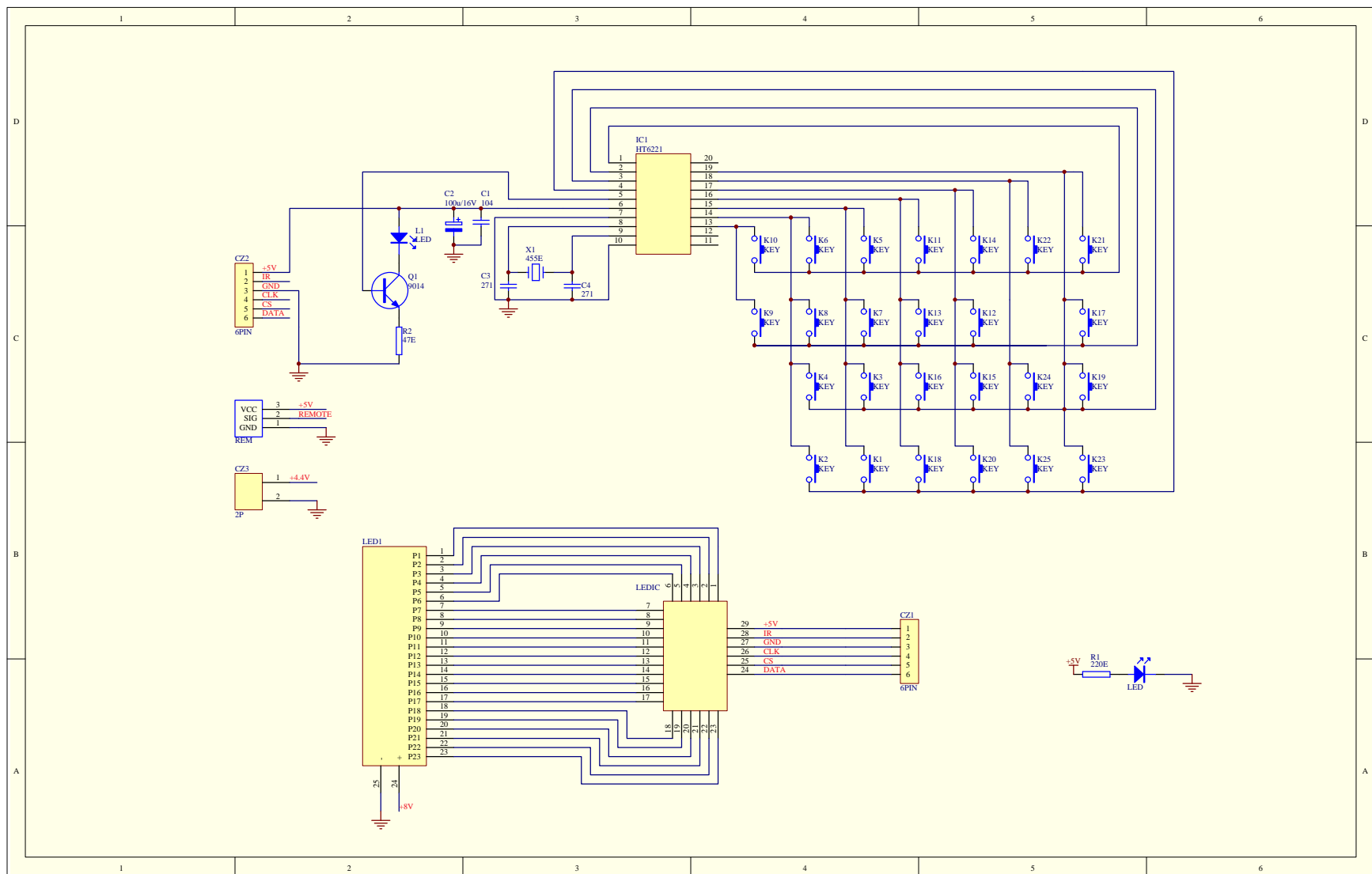
No.	Name	Counts	Blueprint No.	Material No.	Notes
14	changeable resistor R1216G11A2-A20K six-foot mode	2	RW1,RW2	DW-WT1Z20KS01	
15	PCB GV-DHB910	1		PCBDHB910	2001.04.28
16	jumper 10mm	3	J1,J2,J3	FJ-TX10MM	diameter:0.6mm
17	bracket for microphone board	1		WJMBZJ320	
18	round-headed self-fastened hardened nail BTV3*6 colorful zinc	1		LDBBTV3*6C.A1	for fastening bracket of microphone board and PCB board
19	magnetic circle	1		WJ-CH16128	outer diameter:16mm inner diameter : 12mm height:8mm
20	2.54connector with terminator red-white row-wire 4P 270mm	1	XH1	PX-B270W4R	from earphone board to decoding board

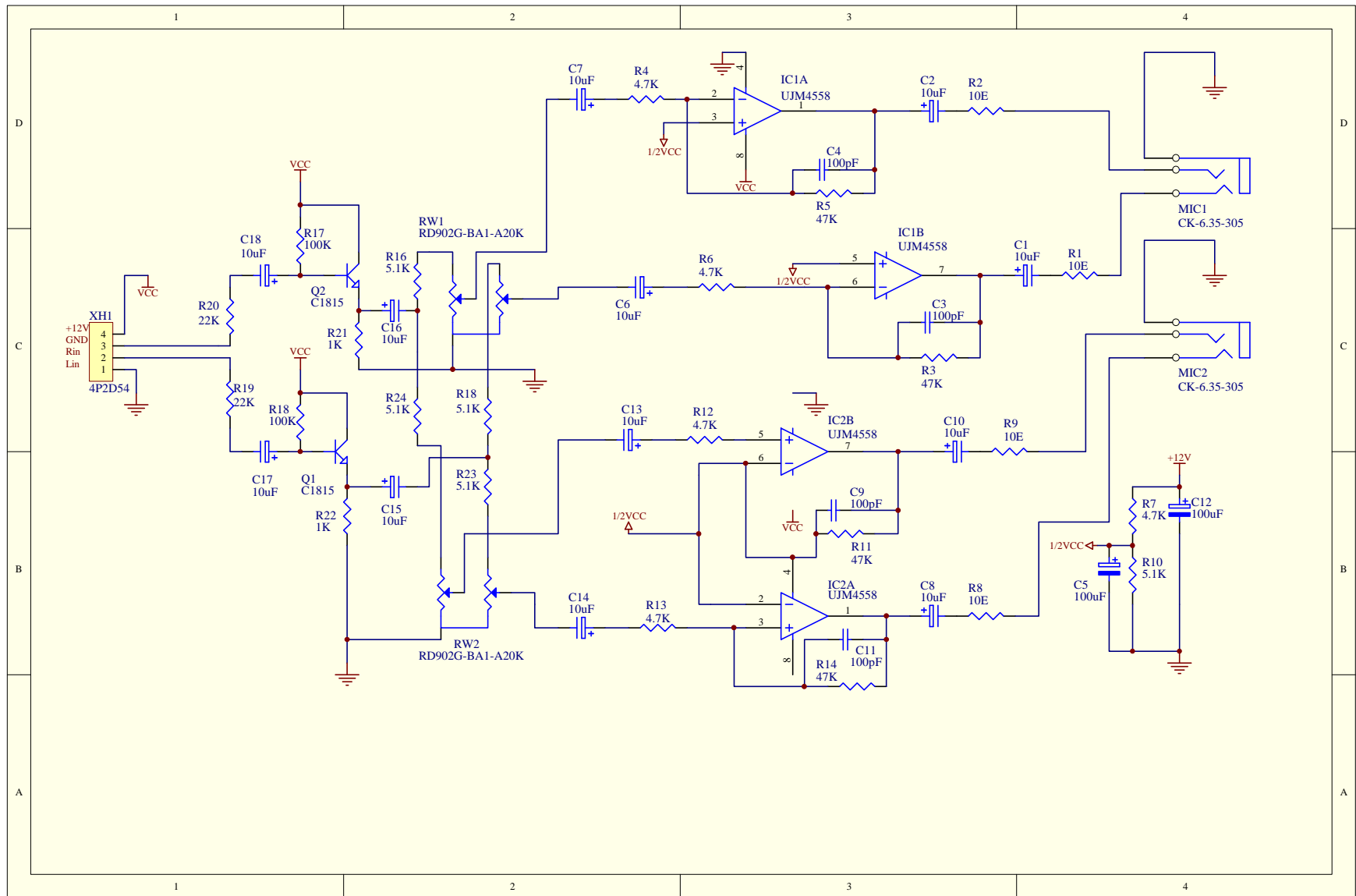
8. Block Diagram

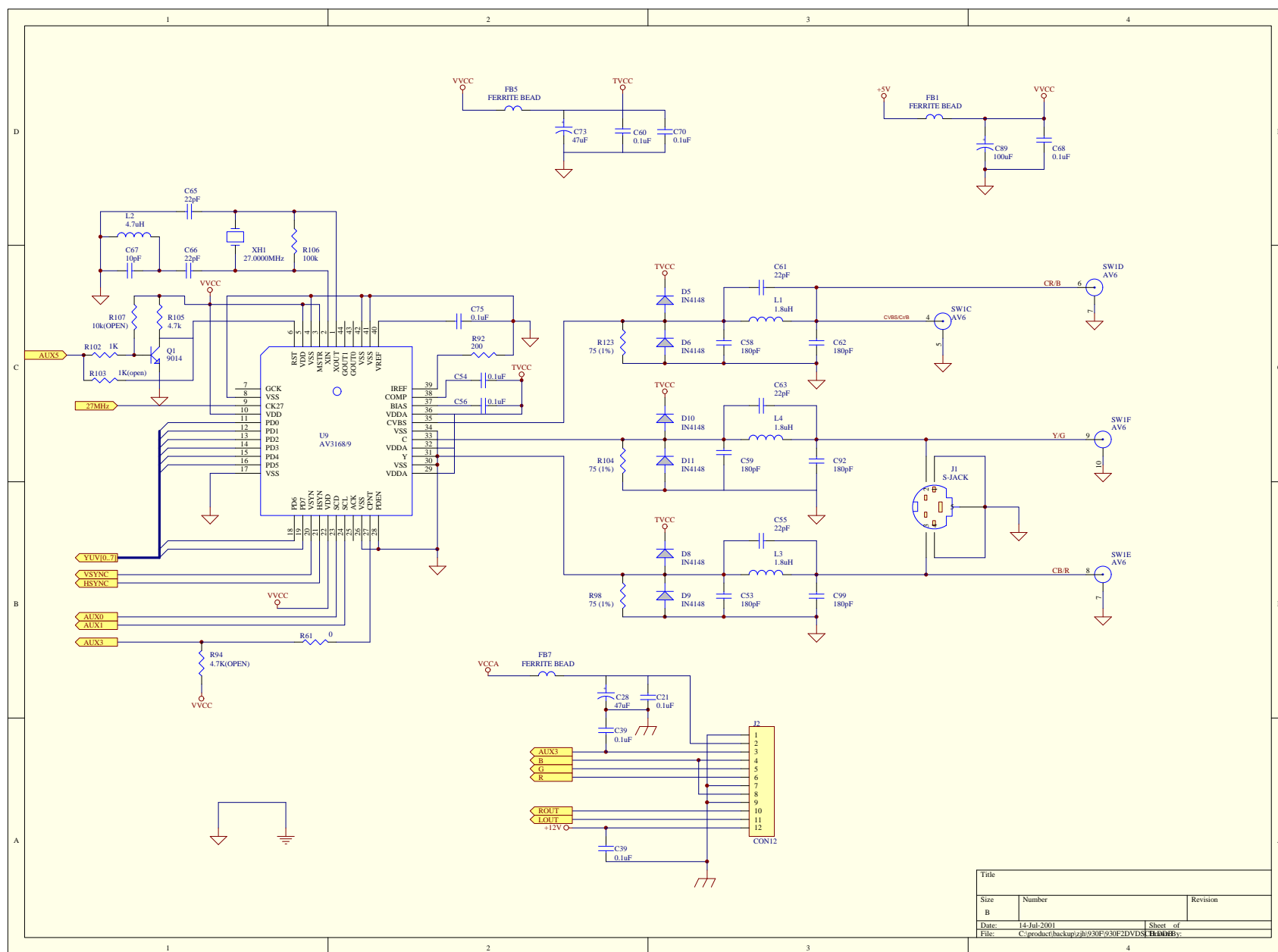


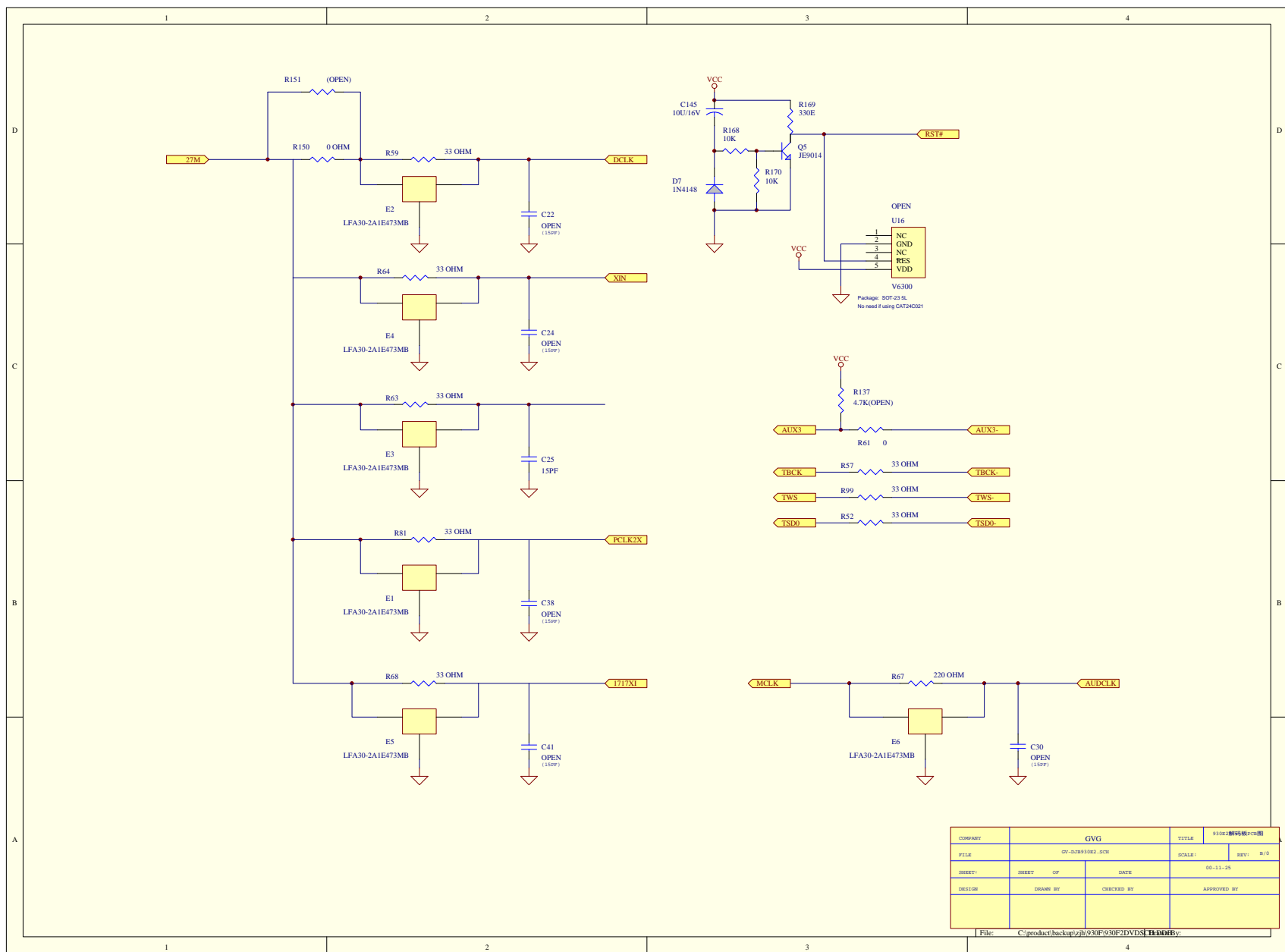
9. Circuit Diagrams

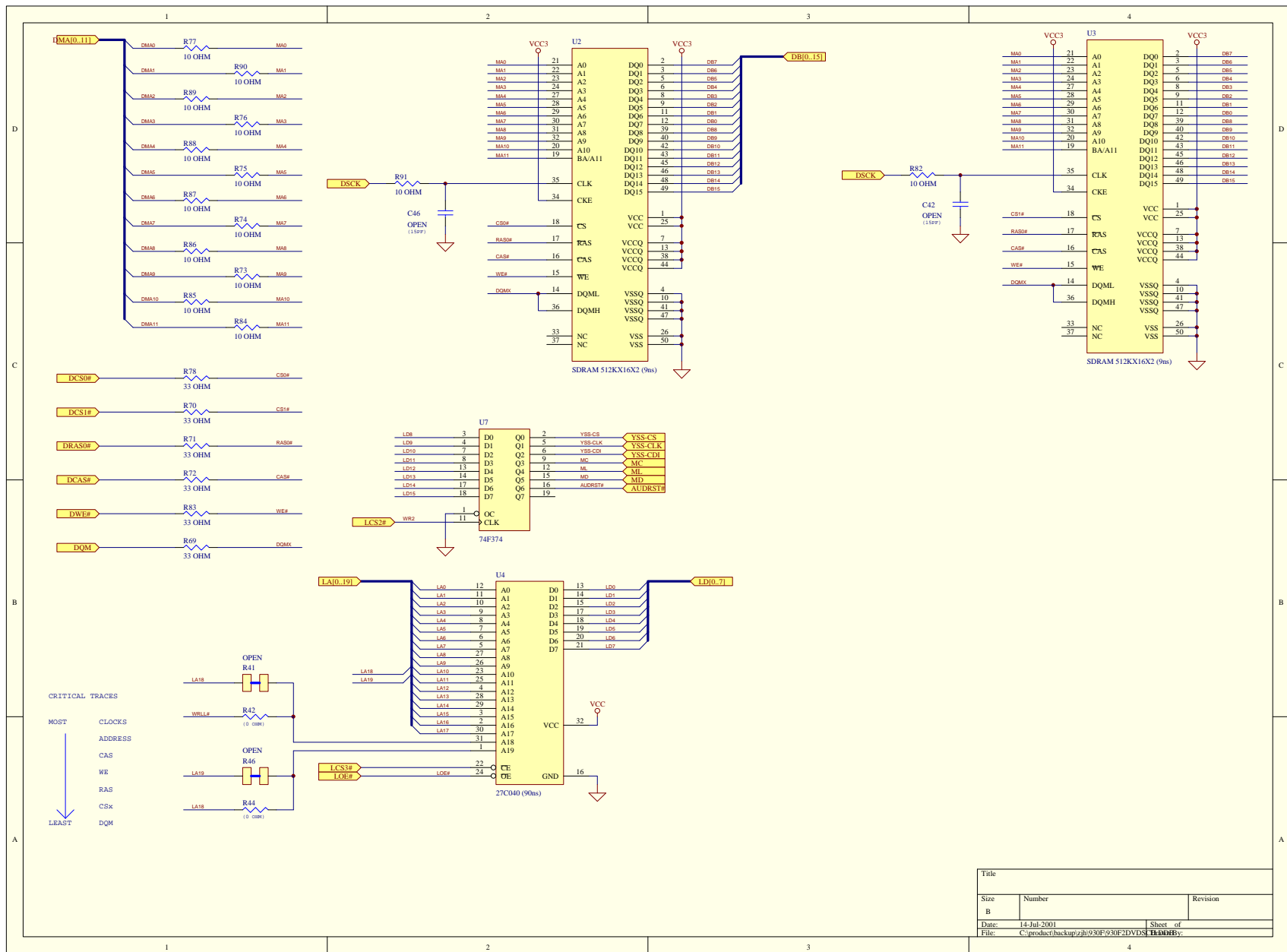
1. Control Part
2. Ear Part
3. Video Part
4. Clock Part
5. Memory Part
6. Chip 4318
7. D/A Converter Part
8. Atapi Part
9. Audio Part
10. Power Part











Title		
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File:	C:\product\backup\zjh\930F\930F2DVDSE	By:

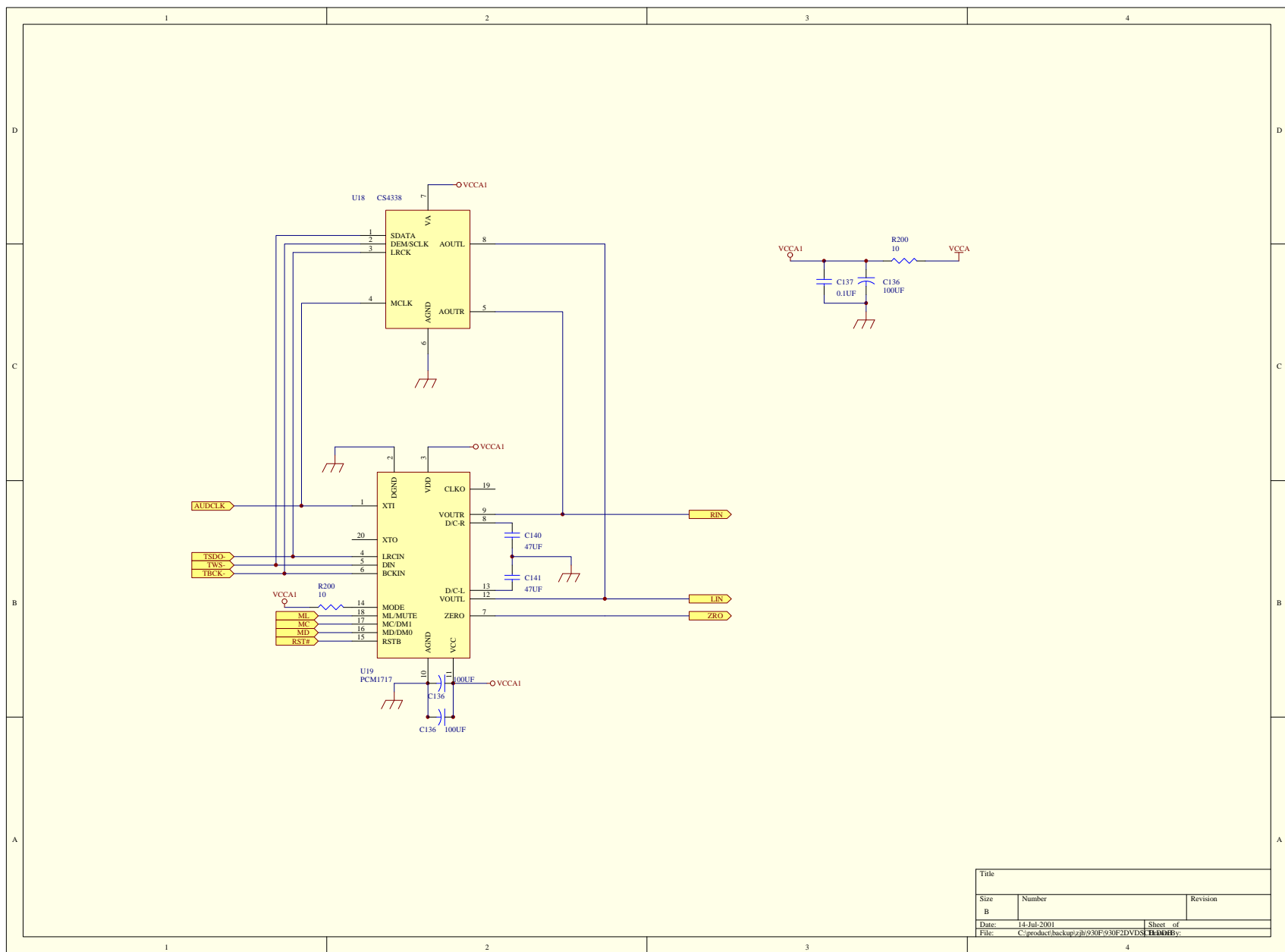
SWAN ES4318

Initial R100 for ES4308
Initial R101 for ES4318/ES4408

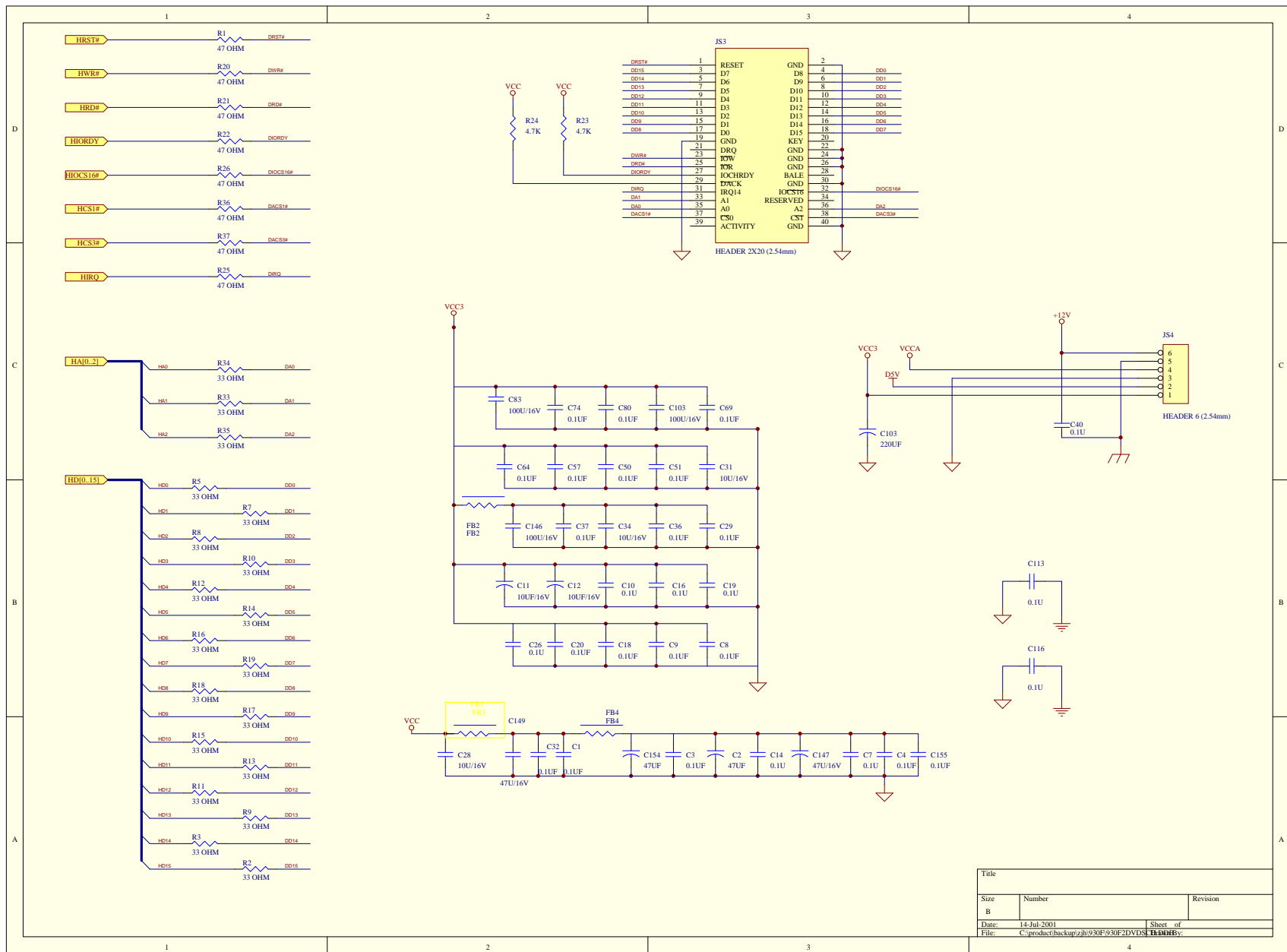
INTERNAL R147, R148, R149, R156, INTERNAL R167 FOR 24C01
INTERNAL R147, R148, R149, INTERNAL R156, R167 FOR 24C04

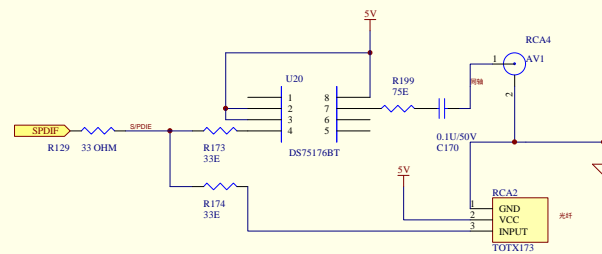
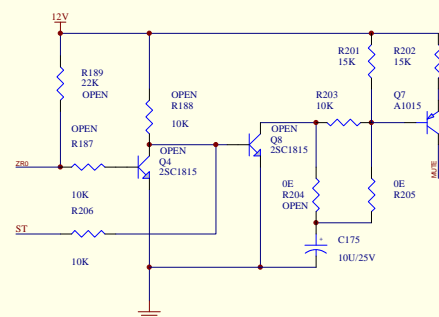
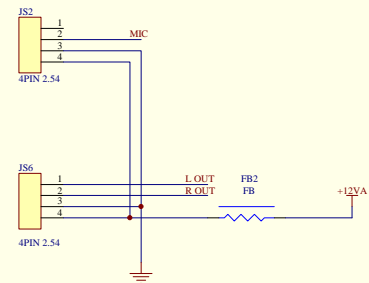
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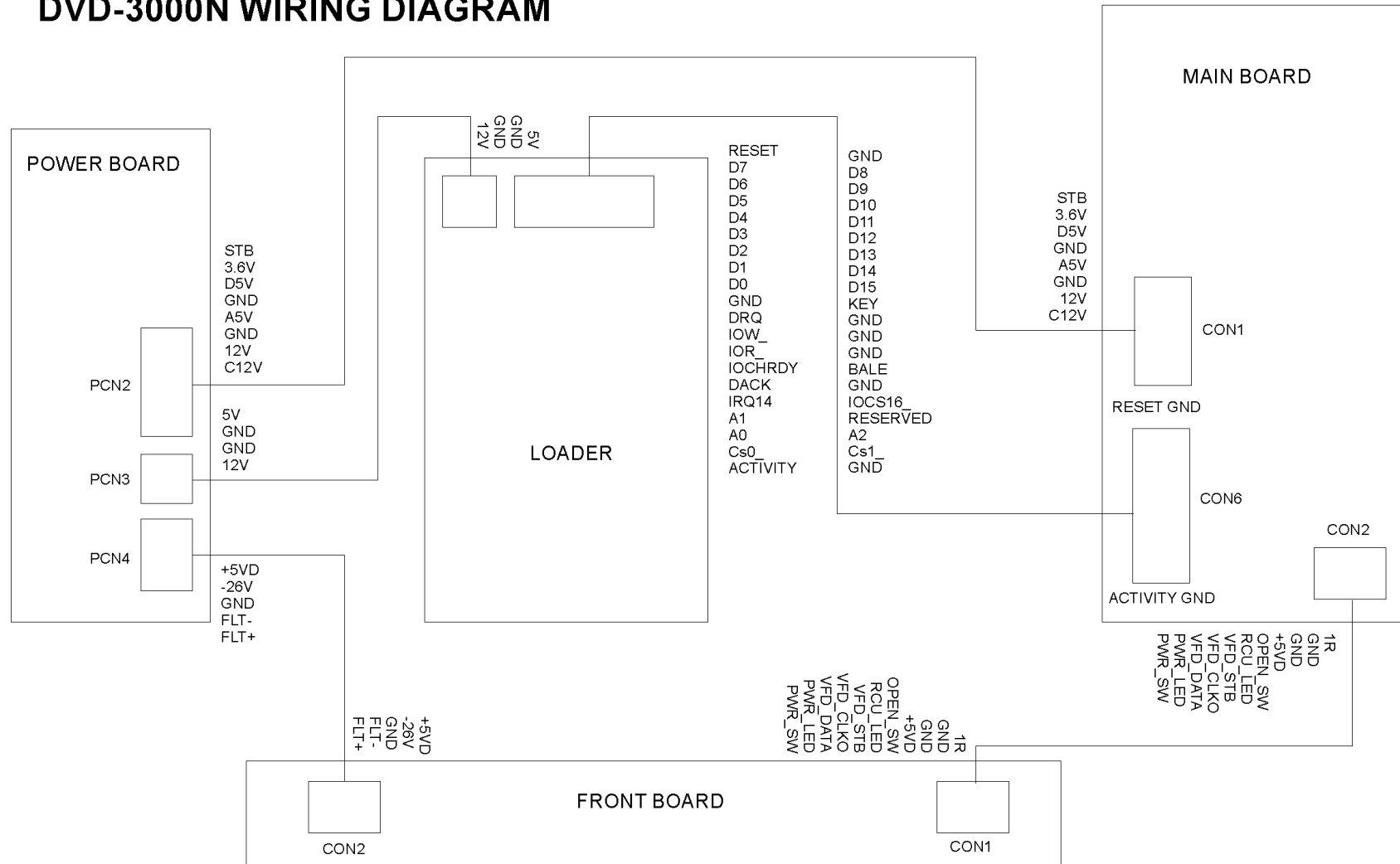




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10. Wiring Diagram

DVD-3000N WIRING DIAGRAM



DAEWOO

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CABLE : " DAEWOOELEC "
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